

Translated by Heinz Norden

Edited by Jürg Spiller

Paul Klee **Notebooks**
" **Volume 2**
The nature of nature

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J.S.

205178

The artist cannot do without his dialogue
with nature,
for he is a man, himself of nature,
a piece of nature and within the space of
nature.

Paul Klee, 1923

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Note on the arrangement of the text

Paul Klee's texts and lectures occupy the larger part of the printed page. They are set in the larger type-size. The columns set in smaller type contain quotations from Klee's writings (in quotation marks) and notes by the editor. Occasionally comments by the editor are also set in the larger type-size, for typographical convenience and where the source is obvious. Here is an example (for the corresponding illustration see p.63):

1934/u 8: *Supervegetational*.
Waxed watercolour on plaster-grounded lute.
60.5 x 80.5.

From one of Klee's notes on nature study:
'Dynamic forces are inward (esoteric), limits are outward (exoteric). Core, interior space, material rind, exterior space. Concepts: dynamic form – limitational form. Additionally, the abstract: active-linear, linear-medial.'
1934/u 8: *Supervegetational*:
Synthesis of firm and relaxed rhythms. The individual form of the core layers is firm. The structural elements are looser and more flowing than the surrounding layer.

Creative power is ineffable. It remains ultimately mysterious. And every mystery affects us deeply.
We are ourselves charged with this power, down to our subtlest parts. We may not be able to express its essence, but we can move towards its source, insofar as at all possible. In any event, it is up to us to manifest this power in its functions, just as it becomes manifest within ourselves.
In all likelihood, it is itself a form of matter, although it cannot be perceived with the same senses as the more familiar kinds of matter. Yet it is in these familiar kinds that it must reveal itself. It must function in union with matter. Permeated with matter, it must take on living, actual form. It is thence that matter derives its life, acquiring order from its minutest particles and most subordinate rhythms all the way to its higher articulations.

Dimensions of pictures

All measurements are in centimetres, height preceding width. In the reproductions of paintings, measurements indicate the outer limits of the painted surface. For watercolours, colour prints, and drawings, they indicate the size of the work, excluding the mount.



Paul Klee in 1896, aged 17, in the garden of his family home in the Obstbergweg, Berne.

Introduction

The concept of the infinite as cosmic-earthly tension

¹ First published in *50 Jahre Bauhaus*, catalogue of the exhibition, p.83, Württembergischer Kunstverein, Stuttgart, 1968.

² Crossed out: what 'happened'?

³ Crossed out: 'law'.

The main title 'Infinite natural history' [here rendered as 'The nature of nature'] as a characterisation and *Leitmotiv* is Paul Klee's and heads the introduction to the section 'Style, Archestyle' (20/1-59).¹

In this introduction to the subject of archestyle, the question of style is developed in terms of cosmic history or cosmogony. Klee posits an absence of gravitation as the primordial state and regards mobility as the prerequisite for change from this original state. The concept of the infinite thus applies not merely temporally, but must be understood spatially in terms of earthly-cosmic tension.

As a premise for basic style-setting forms as for the absence or presence of gravitation this concept is so extraordinary in a theory of form that the text is here reproduced in full.

'In the beginning what was?² Things moved freely, so to speak, in neither curved nor straight directions.

'They must be thought of as primordially mobile, they go whither they go, in order to go, without aim, without will, obeying no law, taking their motion for granted, as a state of primordial mobility.

'Initially there is but one principle:³ to move. No law of motion, in other words, no special will, nothing specific, nothing partaking of order.

'Chaos and anarchy, a turbid jumble. The intangible – nothing is heavy, nothing light (light-heavy); nothing is white, nothing black, nothing red, nothing yellow, nothing blue, only an approximate grey.

'Even the grey is not precise, nothing is precise, all is vague, indeterminate.

'No here, no there, only everywhere. No long-short, only everywhere. No far-near, no yesterday, today, tomorrow, only tomorrow-yesterday.

'No doing, only being.

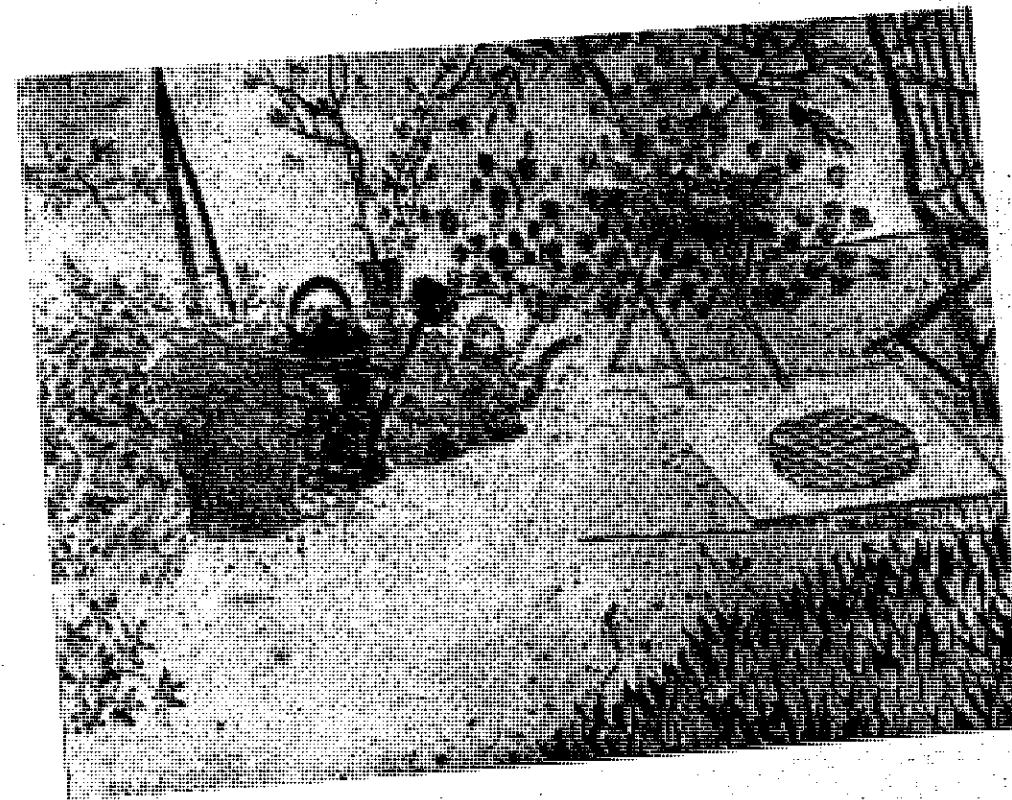


The family home in the Obstbergweg, Berne.
Paul's father Hans Wilhelm Klee lived here until his
death in 1940 and his sister Mathilde Klee
(1867-1953) until 1953.

¹ Original version superscribed: 'only a shadowy
interweaving'.
² Crossed out: 'is probably objectively untrue'.

'No explicit rest, no explicit motion, only a
'The only something: mobility as a prerequisite for change from this primo, stat. stat.
'Whether it was so is not proven,² is hopefully true, is at any rate conceivable, and what is
conceivable is factual and useful. It is useful as a concept opposed to what may have en-
sued, to change, development, seizure, specification, measurement, destiny.
'Perhaps it was at least a pause in the course of events, a caesura in the cosmic pro-
gramme that knows neither beginning nor end, but is marked by breaks, halts, let-ups.
It is useful, moreover, because it may be creatively exploited for purposes of contrast.

1905/24: Garden scene, watering cans, a cat, a red
chair, from nature.
Watercolour under-glass. 14 x 18.5.
The theme for this small under-glass painting by the
youthful Klee was borrowed from the garden of the
family home in the Obstbergweg, Berne, shown
opposite.



'Hence it is chaos, after all, not chaos inconceivable, but chaos conceivable, as logos.
'This means that chaos as a concept does not stand alone, no more than cosmos can be
grasped apart from chaos. They are a mutual conceptual duality. They serve operationally,
with the support of contrast, tacit or explicit.



Paul Klee with his father Hans Klee in 1935 in the garden of the family home in the Obstbergweg, Berne. Hans Wilhelm Klee was a music teacher at the Berne seminary of Hofwil. He died in 1940 at the age of 91, a few months before his son.

'Gravitation

'"In the beginning": what happened?

'Things, presumably gaseous condensations, thickened as accumulations and proximations of their particles. A few particles attracted one another, forming focal groups for further attraction. Once attracted, they established a dominance for themselves and other particles that came within the sphere of attraction. As the group grew, its parts fitted more and more into a hierarchy.

'Reaching out from a main nucleus (a centre), this graduated exercise of power regulated itself by attraction, the nucleus dominating the whole.

'The primordial mobility persisted. Nucleus remained primordially mobile and with it the layers, hence the layers too remained primordially mobile, but only co-mobile rather than autonomous. They did not move on their own, they rode along. They were fixed in their relation to the nucleus, but since the nucleus was mobile, they too were mobile.'

In another passage, Klee characterises the concept of the infinite in a context that is also out of the ordinary. Here too movement is the standard prerequisite, extending in time from beginning to end and leading to circulation.

'The instinctively sensed possibility of going beyond a beginning is characterised further, in the concept of the infinite, which extends from beginning to end (not related solely to the beginning), leading to cyclical motion, where movement is the norm and the question of its inception does not therefore arise.'

The finite circulatory motive in nature¹ for its part characterises paired tensions such as finite-infinite and earthly-cosmic.

¹ Water cycle, p.93.

The seasons, p.97.

Cosmic cycle, p.99.

Circulation of the blood, p.101.

Chronology of the Lectures, 1921–24.

The lectures from 'Towards a theory of form production' provide the main part of *The thinking eye* (Volume 1).

They comprise the winter semester of 1921/22 and the summer semester of 1922, with a section entitled 'Review of exercises in general'.

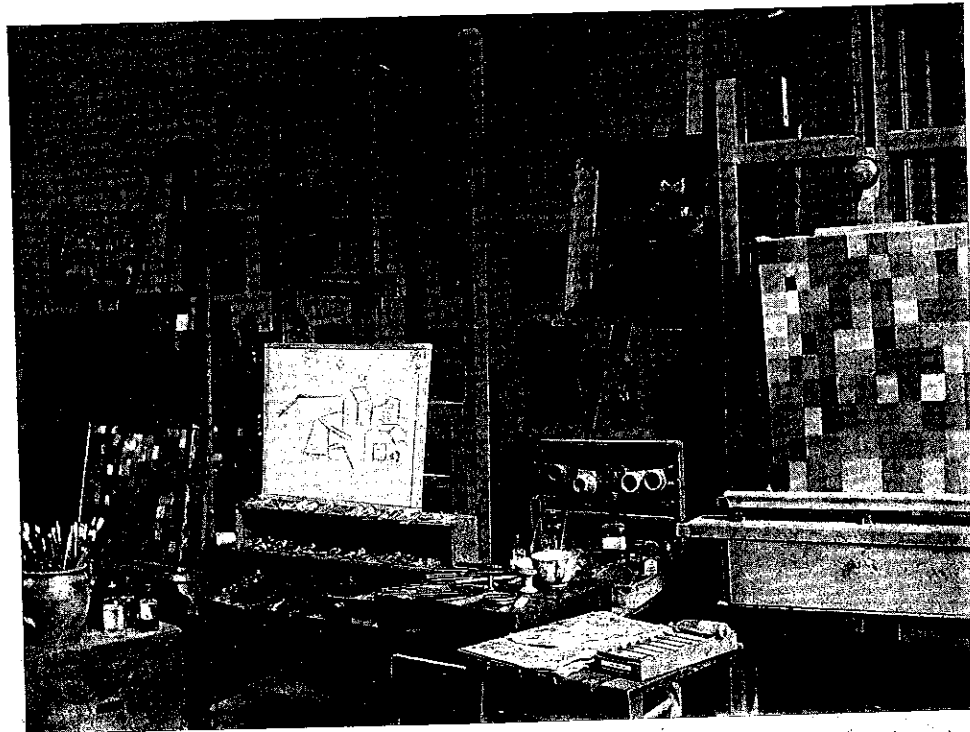
The winter semester of 1922/23, dealing with colour system, forms the concluding part. The dates run from 14 November to 19 December 1922.

The last lecture closes with peripheral colour movement and the rule of colour tonality.

The present second volume comprises the 'General system of pictorial media combined with nature study'.

It consists of the continuing lectures during the winter semester of 1923/24. In between lay the brief summer semester of 1923. In the summer of 1923, following colour theory, exercises in this field were presumably held for advanced students.

At the beginning of every preliminary course Klee always went back to basic theory, while the 'General system' represents preparation for an advanced semester. The dating of the lectures makes it possible to view the written notes in chronological order and thus fit them into the Klee papers as a whole. The sequence of the text in this second volume is based on this approach.



Paul Klee's studio in Weimar, 1925.

The basic organisation of media is the same in both lecture cycles: 'line, plane, tone value, and colour'.

Only three brief sections in Volume 1 are devoted to the theory of tone value:

'The movement of tone value (from white to black)' p.421.

'The movements of colour tonality' and

'Synthesis of tonality-movement and temperature contrast' p.423.

In the 'General system' (Volume 2) the theory of tone value took up approximately a full semester.

The section on tone value has been supplemented with examples, mainly from the 'Special system' (60/1-121). In view of the volume on Klee's colour system, which is in preparation, the section on colour has not been included in this volume.

Paul Klee's studio in the Bauhaus, Weimar, 1925.



Klee's colour theory might be suitably characterised as a 'system of colours conceived of as an organic whole at rest and in motion'. It breaks new ground in two areas: colour movement and colour relativity.

Klee represents his colour globe rather like the terrestrial globe in space, on which colour movement takes place peripherally, diametrically, and along the polar axis, or with colours orbiting the globe like satellites or delimiting it like meridians.

A note (8/12) outlines four exercises, suggesting what such practical exercises may have been like, following the summer semester's colour seminar.¹

'Exercises:

- 1 Scale of tone values
- 2 Peripheral colour scale
- 3 Three diameter scales
- 4 Three major polar colour scales.'

¹ Cf. 'Order and nature of pure colours', Volume 1, pp.465-511.

The two parts, 'Towards a theory of form production', in Volume 1 and the 'General system' in Volume 2 overlap and supplement each other, although emphasis and focal points differ. In subsequent semesters Klee used both manuscripts together and alternately.

Numerous marginal notes and page references suggest that he kept reorganising his material in new ways, using it over the full range from preliminary to advanced courses.

Klee's teaching from 1921 to early 1924 was very much of a piece, and what he discussed may be supplemented from both parts.

In the light of his experiences during the early semesters, Klee, in the 'General system', increasingly reverted to nature study as his starting point, representing thought and creative processes in simplified, more immediate and more graphic form.

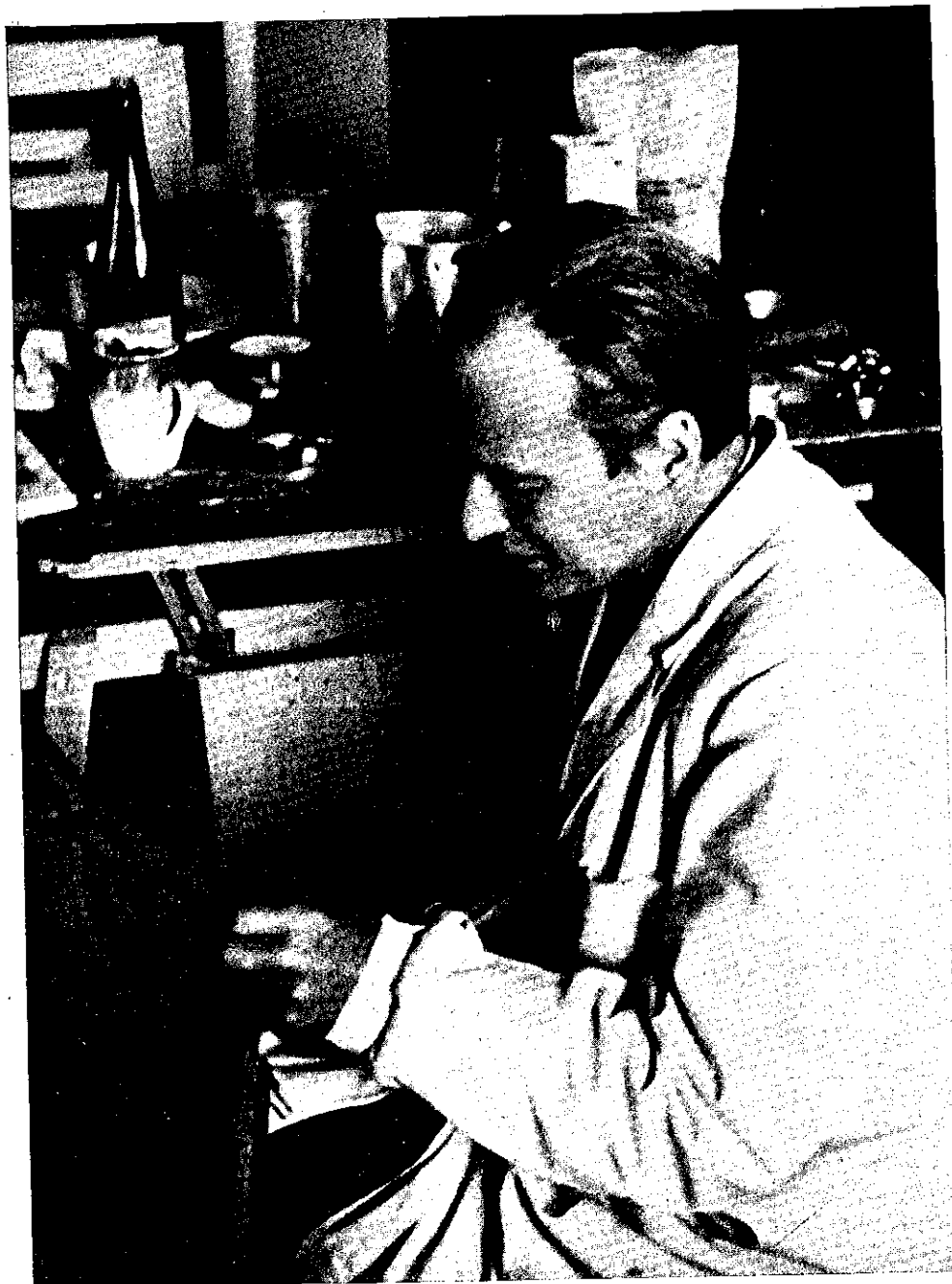
His geometrical and constructional contributions, on the other hand, further enriched and complicated these processes. It was not until his Bauhaus period that Klee, stimulated by the demands of the lecture hall, began to go deeply into the basic theory of two-dimensional extension.

'Towards a theory of form production'
(Volume 1)

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'General system or methodology of pictorial means'
(Volume 2)

Tuesday 23 October	1923
Monday 29 October	1923
Tuesday 30 October	1923
Monday 5 November	1923
Tuesday 6 November	1923
Tuesday 20 November	1923
Tuesday 27 November	1923
Tuesday 4 December	1923
Tuesday 11 December	1923
Tuesday 9 January	1924
Tuesday 15 January	1924
Tuesday 22 January	1924
Tuesday 29 January	1924
Tuesday 5 February	1924
Tuesday 12 February	1924
Tuesday 19 February	1924



Paul Klee in 1938.

Statics and dynamics

Among Paul Klee's unpublished papers, only the manuscripts on 'Statics and dynamics' or 'Pictorial mechanics and theory of style' (45/1-165) are continuously dated. In time they follow directly after the 'General system'.

(Pictorial mechanics or theory of style) 45/1-165)

Dates of lectures

Friday 29 February 1924

Tuesday 4 March 1924

Tuesday 11 March 1924

Tuesday 18 March 1924

2 July 1924

Concluding lecture.

Current dating of lectures ended with the one on Statics and dynamics delivered on 2 July. The corresponding collection of notes, supplements, and sketches, superscribed 'Current material on statics and dynamics' 21/1-59, no longer contains any further complete pieces and running dates.

Primordial approaches to form, 5/1-70

Contains no lecture dates. One chapter is marked 'written in the summer of 1927'.

Style, archestyle, 20/1-59

Deals with the structure, balance and rotatability of static and dynamic elements. Stylistic elements are characterised *ab ovo*, i.e. from their basic forms on up and their behaviour is examined from the static and dynamic point of view. There are no running dates.

Special system of pictorial means, 60/1-121

Contains for the most part examples of specific mobility of means in respect of both tone value and colour. There are no current dates and no lecture texts, apart from the discussion of several concepts.

Both 'Style, archestyle' and 'Special system' also constitute documents Klee addressed to himself, with reference to his own creative interests.

Organisational theory, IV/1-195

With an incomplete separate part on the same subject, largely identical with his voluminous 'Constructive theory of composition'. No current dates. Used in teaching for the sections on articulation and structure, rhythmic, diurnal and individual divisions and their connection. The main parts have been published in Volume 1.

Klee intended to publish 'Statics and dynamics' (or 'Pictorial mechanics') as one in the series of Bauhaus Books; and in 1925 the Bauhaus Publishing Company repeatedly announced the volume.¹

Expressing the basic duality of form, the term 'Statics and dynamics', often used by Klee himself, describes the substance of the notes with greater precision than the title 'Pictorial mechanics'.

¹ The concluding lecture of 2 July 1924, was first published in the catalogue of the Paul Klee exhibition at the Basle Kunsthalle in 1967.



1

People today have become much more aware of the idea of static versus dynamic form than was true in the twenties; and thus these two terms as opposites, as applied to pictorial content, are more appropriate than the ambiguous term 'mechanics'.



2

Views of Klee's studio on the Kistlerweg, Berne, taken around 1939.

[1] Foreground, Bimbo the cat; centre picture on the back wall *Scholar (self-portrait)*, 1932 z 6 (cf. Volume 1, frontispiece).

[2] Corner cupboard with painting supplies. On top, two reliefs now at the Paul Klee Stiftung, Berne.

General and special system
Behaviour of pictorial means at rest and in motion

After 1924/25, the 'General system of pictorial means' formed the counterpart to the 'Special system of pictorial means' (60/1–121).

The 'General system' reviews the conceptual means before they are used in form production, in a state of rest.

In the 'Special system' movement is associated with the means. Form-producing tensions and contrasts among various individual forms result in the special kind of mobility that effects the first step from form to form production.

'This reorganisation picks a few characteristic passages from the "General system" and reshuffles them by new criteria.'



2

Paul Klee in his Berne studio.

[1] In 1938.

[2] In 1939.

'Special system
or methodology
of pictorial means

First step from
general to specific methodology
based on the concepts:

Limitation
Interruption
Rearrangement
Disproportion

By movement (direction of movement)
Unilateral
Parallel movement
Movement and countermovement

Modes of movement

Interruption:
Gliding
Striding
Leaping
Central figuration without discontinuity
Jumps

Rearrangement:
By shift
Rotation
Reflection
Complementary

Limitation or superfluity and
disproportion
Major-minor, majority, minority

Direction of movement:
Composite unity
Movement and countermovement
Composite unity in two
dimensions'

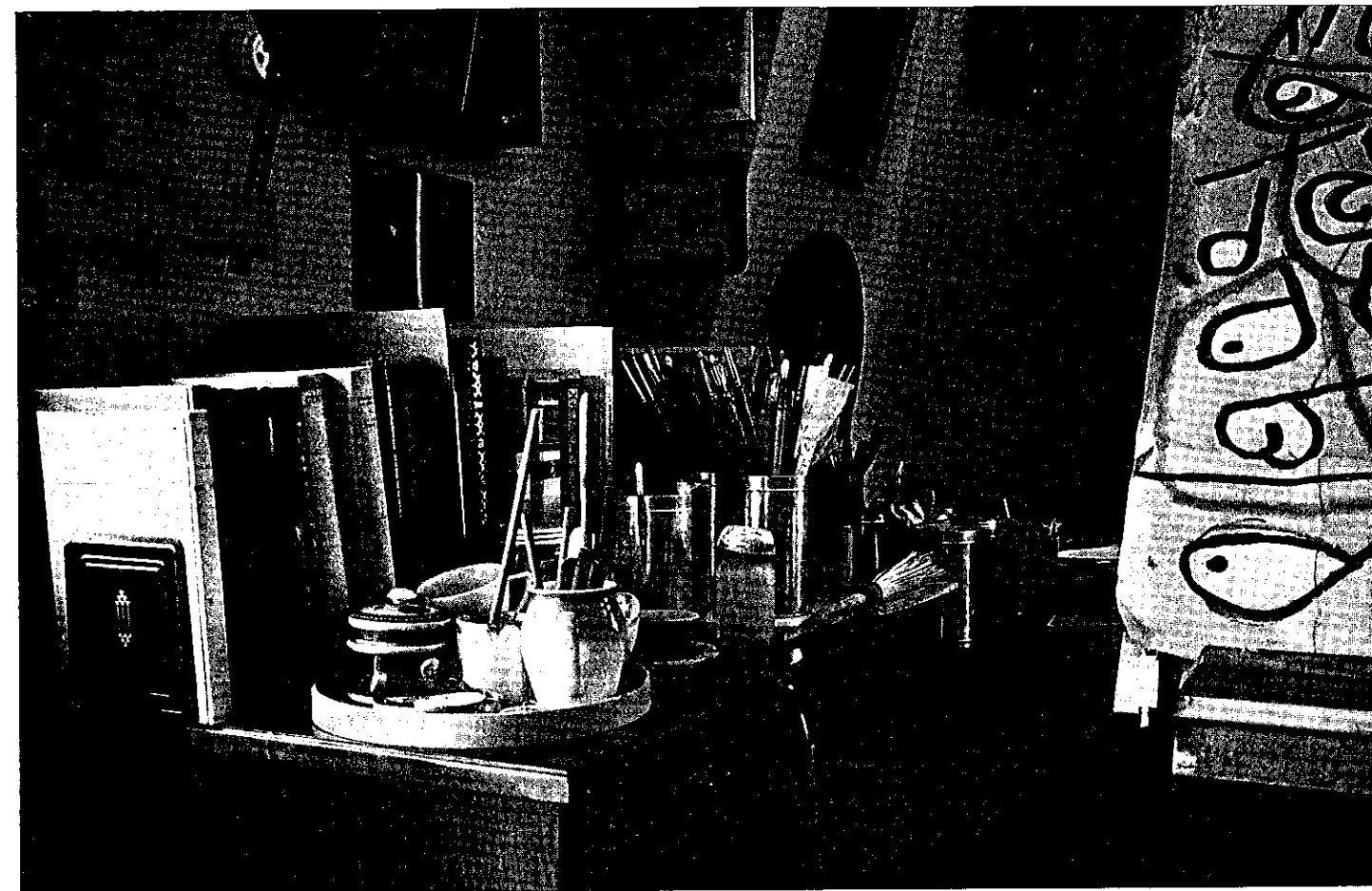
'Figuration must be connected with the concept of movement. In the general case mobility ends in rigid rest. As primary values, formative means as such are elementary by nature, but when they become secondary or lesser values, they move to and fro among the firm primary values.

'Movement of the means is itself a to and fro between firm points, and this may in turn result in more firm points, like grey, green, orange, etc.

'Once established, the whole "structure" of formative means is immovable, immutable, unique. Hence the term general.

'One cannot say: Let us do this once again in a different or better way. Perfection is absolute here.

'One principle predicates everything else: The manner of mobility in a composite principle is completely balanced in itself. It achieves this through the regular spacing of the firm points and by the equivalence of the to and fro of movement among the firm points. Thus the whole appears to be governed by a kind of rigidity.



View of the studio in the Kistlerweg, Berne. On the wall, early under-glass paintings. On the easel at right, one of Paul Klee's last designs (now in the possession of his son Felix).

'The structure of a general system of means is bound to be an organism of great rigidity and precision, an assemblage of contingencies expressed in terms of "tonality" and of "colour". It thus provides a kind of topography of "light", "dark", "lightened colour", "darkened colour" and "coloured light" and "coloured dark".

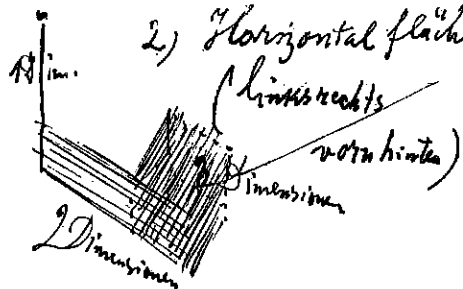
'Such an organism, however, is marked by an immutable rigidity, a unique perfection. 'Living, moving figuration proper must therefore cast loose from the general system. One or more organs of that organism must be singled out and reorganised into an organic perfection of their own. The scope broadens into infinite variability.

'In this process it (the primordial element) must settle on the intended scope of its new-found specific mobility'.

Aufgaben

Prinzipielle Ordnung

Dimensionen: vom Punkt zu Linie zu Fläche zu Körper
 1. Beleuchtung (oben unten) von weiss nach schwarz gestuft
 2. Horizontal fläche
 a) der Peripherie nach
 b) diametral dreiteilig rot, gelb, blau
 Temperatur blau or. Kontrast
 compl. Kontrast ohne Temperaturunterschied.



3. Körperliche dreidimensional weiss rot schwarz
 „ gelb „
 „ blau „

Spezielle Ordnungen

Gesichtspunkte Spannung: materielle, ideelle.
 Erscheinung und Wesen z.B. Wesen des Apfels
 Eros - Logos
 Gliederung: dual - individual
 Einzel und Kombiniert
 Ein Thema mit Begleitung - Mehrere Themen
 Durchdringung Verwerfung
 Formbildende Spannung einzelner Hauptformen
 Organismus aus Hauptformen organisch verknüpft die funktionale Funktion

The hand-written text is transcribed in print on the facing page.

Exercises

'General system

Dimensions:

From point to line to area to solid.

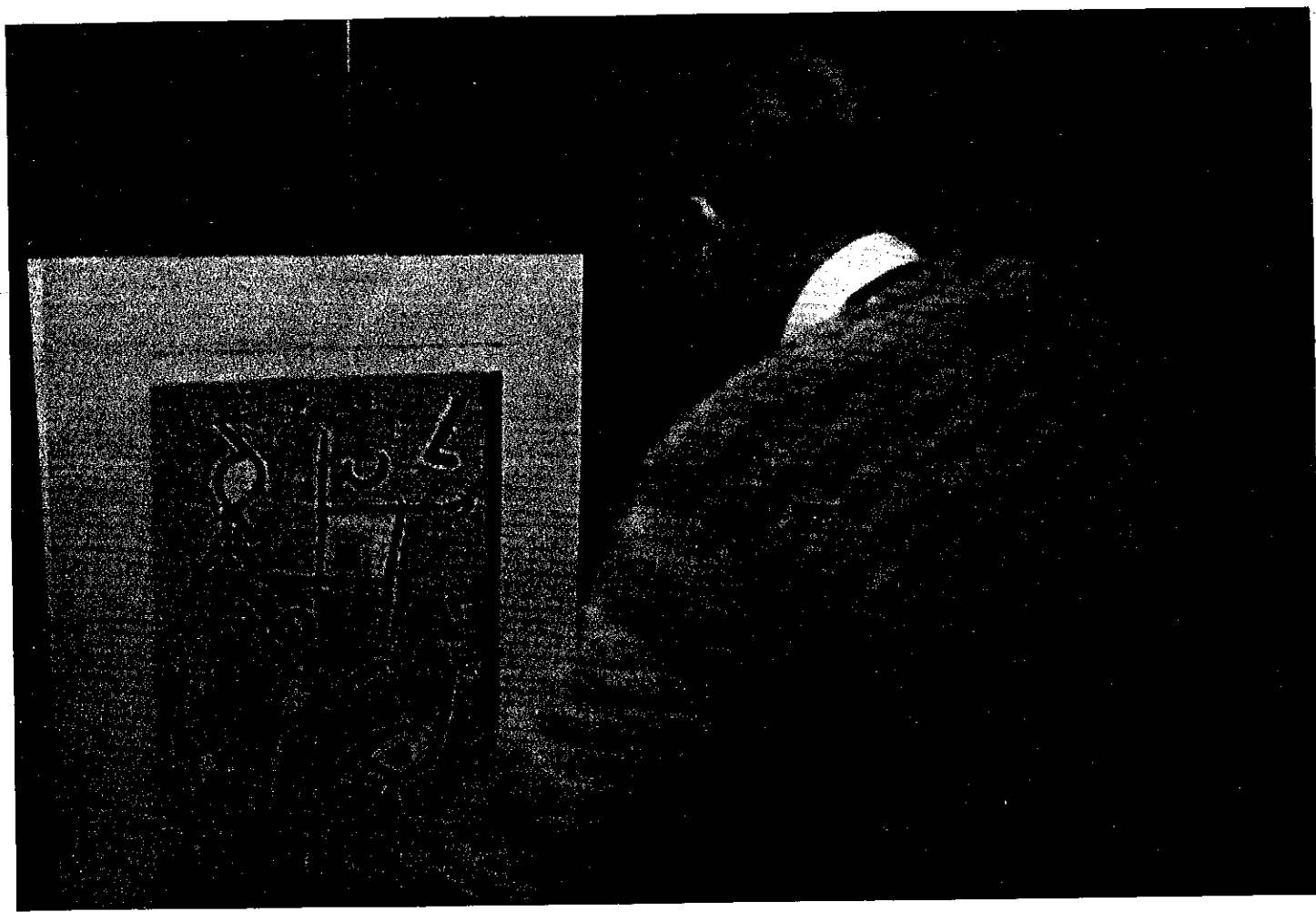
- 1 Lighting (above-below)
Graded from white to black
- 2 Horizontal extent (left-right/front-back)
 - a Peripheral colour
 - b Diametrically tripartite red, green, yellow, purple
Warmth contrast: blue-orange
Complementary contrast without warmth differential
- 3 (Solid) three-dimensional
white red black
white yellow black
white blue black

Special systems

Aspects:

Tension: physical, mental
 Semblance and essence, e.g. of an apple
 Eros-logos
 Articulation: dual-individual,
 single and combined
 Single theme with accompaniment-several themes
 Interpenetration, mutual exclusion
 Creative tension of major individual forms
 Organism organically linked from major forms
 Formal function physical-spatial'

This contrast of 'General system and special system' (8/5), outlining practical exercises for advanced students, was written on the back of a letter to Klee from the Berlin Nationalgalerie of 1 March 1926, and can thus be approximately dated. Conceptually, basic and specific aspects may be distinguished in 'Towards a theory of form production' (Volume 1), as well as in the 'General system', but in practice this would scarcely be possible.



Paul Klee in his Berne studio in 1938.



Paul Klee's studio in the Kistlerweg, Berne, in 1939.

In both lecture cycles presentation of primary values was followed by demonstrations of the special mobility inherent in figuration. The two were indissoluble. Klee's theory of tone value gives elementary examples, but going on from there brings in the element of special mobility. Tone value subsists on movement between the poles of black and white, on tension, on interpenetration, on transition. But for movement, polar contrast would be lifeless and rigid.

Klee opposes 'constructive' figuration to 'impressive'.

Constructive approaches to composition

constructive i.e. causally real	- impressive virtual (i.e. in appearance)
------------------------------------	---

constructive by nature	- constructive by semblance
------------------------	-----------------------------

'Constructive representation provides certain invariant valence relationships, while impressive representation reveals a naïve joy in expression.'

constructive integrated with the warp of construction	- impressive - by semblance without the warp of construction
---	--

Klee uses the term 'constructive' as a simplification of the precisely defined concept: 'Normal format, rigidly adhered to, with constructive internal relations, as the canon of the ground plan. The canon as the standard and rule.'

Constructive compositional approaches serve to establish norms and directives in the formative process, and any departure from the acknowledged system must be logically justified.

Klee distinguishes these constructive compositional approaches:	'Schematically fully constructive partially constructive, applied schematic partially constructive figuration: free choice of detail. (Or partially constructive play. Irregular random movement.)'
--	--

Partially constructive figuration avails itself of a schematic basis from which it chooses what it deems suitable for free figuration.

'The partially constructive manner', Klee writes, 'happens to be productive in a form-creative sense, but only by calling on the help of the destructive principle. The productive ruin.'

To avoid rigidity and gain a new and freer structure by creative freedom of choice, the schematic basis must be destroyed.

Pride of place is given to order and structure, to organic and heuristic links. In second place comes the application of formative means, whether elementary or mixed, in sum, 'Irregularity', departure from the canon, from the norm.

¹ Cf. *Exact experiments in the realm of art*, Volume 1, p.69, and *Law*, Volume 1, p.71.

² Cf. text, next page.

In the section on 'rules', Klee discusses irregularity as a departure from the constructive norm.¹

'Irregularity means greater freedom without transgressing the law. The conflict between universal and restricted application.

'Partial choice has expressed itself as an absolute structure (omission of the universal) or as a relative structure. Accented, but at the same time susceptible of being measured by the law which forms part of it. All figuration relates the general to the particular. It is more personal or less, according to the nature of the relation.

'But if the priests ask sternly: "What is this shocking anomaly you are producing?" - the absolute structure makes it possible to prove after the fact that the law has been observed, while the relative structure includes the proof, rejects the question and makes the proof unnecessary.'

The overall plan of the general theory of pictorial composition (8/27 and 8/28)² suggests many possibilities that stem from linking the theory of constructive composition with the stylistic plane.

It was long an open question what weight should be given the theory of constructive composition combined with nature study, compared with the theory of form and figuration.

Klee's calendar for the years 1928/30 carries entries on his lessons at the Dessau Bauhaus made over several terms. They suggest that constructive-geometrical instruction took up much more time than has been hitherto believed. It should be considered on a par with his earlier preparatory texts.

This in turn suggests a shift of emphasis from the form and figuration examples prepared in writing during the early Bauhaus years to the constructive basis of two-dimensional figuration. This shift culminated in the years 1929/30 in Dessau and was concluded during Klee's tenure at the Düsseldorf Academy in 1931-33.

"The general theory of pictorial composition falls into two parts:

- A Theory of constructive composition
- B Theory of style

Line of the theory of constructive composition (in general outline):

A Fixed normal relations within static and dynamic forms (full and partial constructions). Slight departures, i.e. random movements about the normal interior pathways (side paths).

To A: Fixed in the static sense means rigidly bound to the vertical. Fixed in the dynamic sense means tranquil harmonisation of free mobility.

B Sharp departures, i.e. movement against the normal interior pathways.

To B: Sharp deviations in the static sense are local deviations from the normal orientation of the vertical and the horizontal, but always in the form of verticals and horizontals. Sharp deviations in the dynamic sense are essentially central shifts and shifts of locales dependent on the centre, avoiding the plumb-line and its closest forces.

Link between the theory of constructive composition and the stylistic plane.

A Theory of constructive composition.

Questions:

1. Are the interior constructive relations of form and format maintained? Are there random deviations?
2. Is there a complete departure from interior constructive relations? Is this done while coincidentally normal constructive relations are also given form? Or are the latter omitted?

B Theory of style

Questions: Are verticals and horizontals present? Rectangles? Are centres and peripheries present? Sextiles?
(8/27 and 8/28).

Nature study and constructive
approaches to composition
Duality treated as unity

The Dessau Bauhaus schedule 1928/29

Constructive compositional approaches, being exact experiments in the realm of art, provide an additional element to the themes treated in Volume 1.

In *The nature of nature* constructive compositional approaches and nature study are contrasted and summarised.

Both bases, the natural and the geometrical rules, are represented in balance, insofar as possible.

'Contrasting locales,' Klee emphasises, 'are fixed. They permit gliding movement. Treat dualism not as such but in its complementary unity.'

To a considerable extent Klee translates into the constructive realm insight about growth and mobile processes gained from nature. Basic geometrical forms are studied by the same criteria as plants, in respect of their causation, their mobile potential, their interior. Beginning with the elements at rest, centres and random points are set in motion, to the end of reaching efficient organic relationships.

In the pictorial sense, the dynamic forces of natural growth and the tensions of basic forms have this in common: function, movement.

In Klee's oeuvre the two poles alternate in holding the upper hand, just as they alternate in the stylistic development of the twentieth century.

It is in the formative process that the duality of nature study and constructive compositional approach achieves creative harmony and synthesis.

'Algebraic, geometrical, mechanical tasks are training elements en route to the essential, the functional, as against the impressive. One learns to look behind the false front, to go to the root of things. One learns to perceive the flow underneath . . . to dig deep and lay bare. To find reasons, to analyse.'

Klee's calendar from the years 1928/29 includes current entries about his lectures. In this fashion an overview of the Dessau syllabus has been preserved. Among Klee's papers, this is the only trace of how the various term courses were built up over two years, and it demonstrates that the geometrical part must not be separated from the text preparations. In practice both increasingly formed a mutually complementary unit.

From the preliminary course to the fifth term there is an alternation of portions from the theory of articulation, the general and the special systems, the theory of organization, and of statics and dynamics as related to questions of style.

The constructive aspects of planimetric figuration bulked large in Klee's lectures.

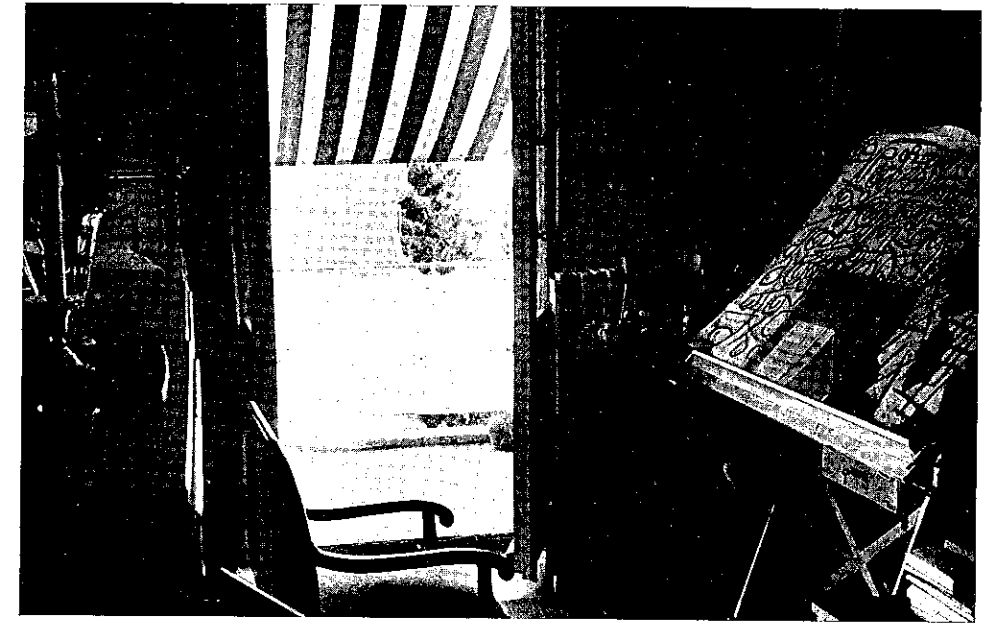
View from the terrace of the Berne studio on to the gardens of the Elfenau.



View from the rear of Klee's Berne home (1931-40) on to the Kistlerweg and Elfenau in winter.



View from Klee's Berne studio on the Kistlerweg on to the terrace and garden in summer.



The Dessau lecture plan for 1928/29 is incompatible with any sharp division of Klee's theoretical papers into the verbal and the geometrical-constructive and with the view that the latter were intended more for his own orientation and exercise. The two display an increasingly coincidental relationship, arising from their function as pole and counter-pole.¹

The link between invariant relations and the stylistic level gives rise to new steps towards multidimensional simultaneity, in the individual form elements as well as in the whole art concept. This was always one of Klee's fundamental concerns.

¹ Cf. the diagram of Bauhaus organisation: 'Art - Organisation - Pure science', Volume 1, Introduction, p.33.

Monday	1928	9 January	Examples of dividual-individual combined. Tension as formal genesis.
Monday		16 January	Weaving.
Monday		23 January	Weaving: basic theory, elementary form. Form in format. Form structures in format.
Monday		30 January	Weaving: inferring the exterior from the interior. Basic theory: form structures from three elementary forms.
Monday		6 February	Form as sum. Preliminary course: decentralisation of form structure from three elementary forms. Composite form.
Monday		13 February	Subtraction. Random movement on rails. Six mechanical variations.
Friday		17 February	Weaving: trapezoid.
Monday		20 February	Weaving: composite form with surface contact (and after) points.
Monday		27 February	Second semester: arches and straight lines. Irregular progression.
Monday		5 March	Preliminary course, second semester: last lecture. Style, problems. Weaving: subtraction, rhythmic patterns.
Monday		12 March	Weaving: division.
Thursday		22 March	Preliminary course participants turn in problems.
Friday		23 March	Preliminary course exhibition is installed.
Monday		26 March	Entrance examination 10 o'clock.
Wednesday		28 March	Select items for permanent collection.
Monday		16 April	10 o'clock, second semester begins. General system. Tonality, colour. First part. Weaving: junior course: theory of articulation by measurement. Senior course: multi-unitary centres.
No further entries to the beginning of the summer holidays, 14 July 1928.			
Tuesday	1928	4 September	Second part of summer term begins.
Monday		10 September	Preliminary course: composite form based on sexti-, quadri- and tripartite circle. Weaving: ditto.
Friday		14 September	Conchoids.
Monday		17 September	Rotation, irregularity by use of varying threads. Weaving: Composite form and rotation.
Monday		1 October	Second semester: irregular form structures in fulfilment. Chapter 13. Multi-unitary centres, as departures from inside. Chapter 14. Lastly: departures from outside, irregular circumference divisions. Chapter 13a. Conclusion of theoretical instruction. Weaving: Chapter 10.

Monday	1928	8 October	No theoretical instruction in basic theory. Weaving: addition.
Monday		15 October	No theoretical instruction.
Friday		19 October	Construction of the exhibition.
Monday		22 October	Master council, entrance (of students).
Thursday		25 October	End of term.
Tuesday		30 October	Beginning of the winter semester.
Monday		5 November	Second semester: introduction and black-and-white.
Tuesday		6 November	Open painting class.
Monday		12 November	Second semester: colour sphere. Weaving third semester: black-and-white scales. Fourth-fifth semesters: division in complex case.
Tuesday		13 November	Open painting class.
Friday		16 November	Subject: spatial representation in two dimensions. Representation of the front-to-rear dimension. Front-to-rear as intersection lines with more emphasis or less.
Monday		19 November	Second semester: exercises, diametric colour stages. Weaving 3: gliding, striding, leaping.
Tuesday		20 November	Fourth-fifth semesters: formal mediation with tonality.
Friday		23 November	Open painting class.
Monday		26 November	Advanced semesters.
Tuesday		27 November	Second semester: major-minor.
Friday		30 November	Third semester: major-minor.
Monday		3 December	Fourth-fifth semesters: formal mediation. Open painting class.
Tuesday		4 December	Advanced semesters.
Friday		7 December	Second semester like third semester on 3 and 10 December.
Monday		10 December	Third semester: unequivocally directional movement based on major-minor.
Tuesday		11 December	Fourth-fifth semesters: ellipses - interior construction.
Friday		14 December	Free painting class.
Monday	1929	21 January	Two hemiprogressions on grey base.
Friday		25 January	Second semester: shifting, reflection, rotation.
			Third semester: as on 3 December, but based on different values.
			Fourth-fifth semesters: interior construction of ellipses.
			Free painting class.
			Advanced semesters. Only one student, exercise called off.
			Second semester: articulation. Proximity of members. Rhythmics.
			Weaving: ellipse, shift, reflection, rotation.
			Advanced semesters (five students).
			Combination of point and line progression.

März 1929	
11. Woche 10 Sonntag	
11 Montag	• 2. Sem. Form in Format Formgebilde in Format Web (alt) Rollcarven
12 Dienstag	günstig, Ökonomie 2 Auseinandersetzungen zwischen
13 Mittwoch	Überfluss und Mangel a) zahlenmäßig b) an Farbe
14 Donnerstag	
15 Freitag	Operationen auf Vertical Flächen und Combinationen Operationen auf Vertical und Horizontalflächen
16 Sonntag	

Two pages of Klee's calendar notes for 1928/29. In addition to key words for his lectures, the calendar carries precise entries about Klee's trip to Brittany in July and August 1928. From Dessau to Nanterre, Begmeil, Quimper, Quiberon, Paris, Berne. Also about his trip to Egypt, December 1928 to January 1929. Also noted are numerous visits to the opera, theatre, and concerts.

März 1929	
12. Woche 17 Sonntag	
18 Montag	• Formgebilde des Element-formen grobem, geschl. Form einfachste Form
19 Dienstag	Web Cylindren, involventen, Spiralen web für eine Überfluss - Mangel
20 Mittwoch	a) b) wie früher c) unvollständig d) vermehrt
21 Donnerstag	
22 Freitag	Frontal Flächen operation drauf eine Combination Frontal - horizontal
23 Sonntag	

Klee's time schedule at the Dessau Bauhaus, 1927-29. Instruction comprised eight hours a week for each semester.

		Winter semester 1927/28	
Monday	11-13 h	Weaving	
	15-17 h	Second semester	
	19-21 h	Life class	
Thursday	15-17 h	Painting class	
		Open studio	
		Summer semester 1928	
Monday	10-12 h	Second semester	
	15-17 h	Weaving	
Tuesday	15-17 h	Open painting class	
Friday	10-12 h	Fourth semester	
		Winter semester 1928/29	
Monday	10-12 h	Second semester	
	15-17 h	Weaving: fourth and fifth semesters	
		17-18 h	Weaving: third semester
Tuesday	15-17 h	Painting class	
	(17-18 h)	Studio	
Friday	12-13 h	Creative figuration	
		Fifth semester	

Monday	1929 28 January
Monday	4 February
Saturday	9 February
Monday	11 February
Monday	18 February
Monday	25 February
Friday	1 March
Monday	4 March
Friday	8 March
Monday	11 March
Friday	15 March
Monday	18 March
Friday	22 March
Friday	29 March
	9 April

1. Number categories of articulation. 2. Theory of proportion. Weaving: ellipses, conclusion. Parabola (whole integers). Younger: exercises (held over). Exercise: theory of organisation (articulation). Weaving older [semesters]: parabola, continued. Weaving younger [semesters]: cancelled. Bauhaus festival. Cancelled. Exercise: organisation, homophone-polyphone. Weaving older [semesters]: hyperbola. Weaving younger [semesters]: inner reversion, complementary. Called off on account of cold. Operations at horizontal levels of various heights. Second semester: genesis of elementary forms. Tensions, etc. Weaving older course: hyperbola-asymptotes. Normals and tangents. Three conchoids, circular conchoids. Weaving younger course: augmentation by complementary reversion. Terminology of measurements of height, width and depth. Second semester: form in format. Form structures in format. Weaving older [semesters]: rolling curves. Weaving younger [semesters]:

- Economy (of means).
- Conflict between superfluity and deficiency.
 - Numerically.
 - In terms of colour.

Operations on vertical surfaces and combined operations on vertical and horizontal surfaces. Form structure of three elementary forms. Composite form - unitary form. Weaving older [semesters]: cycloids, evolvents, spirals. Weaving younger [semesters]: superfluity - deficiency. a) and b) as before. c) immediate. d) mediate. Frontal surfaces, operations thereon. Single combination frontal-horizontal. Spring holidays begin. Semester begins.



Klee's studio after his death on 29 June 1940.
On the easel in the background, what is probably his
last oil painting, on black background, 1940,
untitled.
Cf. colour plate, Volume 1, p.495.

Basic theory before figuration

There is but one reference to 'basic theory before figuration' (8/20), from Portfolio 8/1-31, which bears the title 'Introduction'.

The reference is fragmentary, as are numerous titles in this portfolio. In many cases neither plan nor design was followed up.

'Chapter 1. Before figuration.

'Spatial order of ideal pictorial means at rest.

'The objective ends of pictorial means are effective, even when reduced to points. This is less true of the intermediate stages. They require more scope to become sensibly perceptible and measurable, or weighable and critically perceptible. (Or sensibly criticisable.)'

It is almost impossible to draw a sharp line between the ideal means at rest and the concept of the theory of form. The basic premise must be a principle, but the living figuration must be separated from the general principle.

Sequence of stages

Form	the formal element <i>per se</i> , elementary, as a static phenomenon
Act of forming	must be based on primary process
Figuration example	straightforward coincidence of forms, based on a process, e.g. a function
Figuration process	higher combination of formal elements and pictorial processes
This demonstrates the borderline where statics end and event passes into motion, is indeed inconceivable without the mobile process.	

In a section on 'Active craft-related movement', Klee characterises this relation: 'The relation between form and the act of giving form, perceived and gained even on the micro-scale, retained its fundamental significance even in subsequent studies, precisely because it is a matter of principle. I should like to capture this significance in one sentence: The approach to form, supposedly dictated by some internal or external necessity, is more important than the goal, the end of the path... The act of giving form determines form itself, and the process is more important than the form.

'Form must never and on no account be considered disposal, result, end product, but rather as genesis, essence, growth... Good means form as movement, action, active form. Bad means form as rest, as end point.'

What really interested Klee were the processes of thinking and forming, and their functions, the act of forming in terms of living examples.

In essence it is the results that retrospectively set the foundation for basic theory.

Anteil Klee an der Grundlehre (steht unter II Formlehre)

8
6

I Theoretisch (Vorträge)

A

Vor der Gestaltung

Übersicht und Orientierung auf dem Gebiet der ideellen bildnerischen Mittel (Linie, Hell-dunkel und Farbe); ihre räumliche Ordnung im Ruhezustand.

B

Gestaltungslehre (mit Naturstudium verbunden)

- Allgemeine Begriffe der Gestaltung
Spannungen von Weg zu Ziel, Wesen und Erscheinung, Natur und Abstraktion.
Zieh-kräfte-Grenzen
- Gliederungslehre
primitive Rhythmik, Stufung der Werte, diaduelle und individuelle Teilungen oder Strukturen und Proportionen (und deren Verbindungen)
* melodisch — thematisch
- Bildnerische Mechanik (Statik und Dynamik) und die Ableitung des Begriffes Stil.

Zu allen obigen Abschnitten gleichzeitige Übungen (auch Aktzeichnen), welche sich auf das Gebiet der ideellen bildnerischen ^{und dann} Mittel (Abschnitt A) beschränken.

Dessau Sept 1925

K

Outline of basic theory by Paul Klee, Cf. lower part of facing page for transcription.

Structure of the basic theory

melodisch oder thematisch
Kontrapunkt

By contrast to the fragmentary and undated reference 8/20, three outlines bearing the general title 'My share in the basic theory' have been preserved.

'My preliminary theory, my share in the basic theory', 45/66a.

This hastily drafted outline follows the concluding lecture of 2 July 1924 in the manuscript 'Statics and dynamics' (pictorial mechanics), or was subsequently inserted at this place. A second signed outline (9/3) is more explicit. It is at the beginning of the 'General system' and was thus probably done during the winter term of 1923/24.

The outline reproduced in facsimile opposite (8/6) and entitled 'Klee's share in the basic theory' is dated 'Dessau, September 1925'. It is apparently a final version from the two earlier drafts (45/66a and 9/3).

The essential content of the three versions scarcely differs. In the final version, in Section b, theory of articulation, following 'primitive rhythmic, gradation of values', a reference, 'melodic or thematic, leadership and accompaniment, counterpoint', has been omitted together with the drawing here reproduced.

Klee's share in the basic theory. Dessau, September 1925. K. (8/6)
(Comes under formal theory II)

I Theoretical (Lectures)

A

Before figuration.

Survey and orientation in the area of ideal pictorial means (line, tonality and colour), their spatial order at rest.

B

Theory of figuration (combined with nature study).

a

General concepts of figuration.

Tensions of means and ends.

Essence and semblance.

Nature and abstraction.

Dynamic forces — limits.

b

Theory of articulation.

Primitive rhythmic, gradation of values, melodic-thematic.

Dividual and individual divisions or structures and proportions (and their links).

c

Pictorial mechanics (statics and dynamics) and the derivation of the concept of style.

II Practical

With all the sections above, simultaneous exercises (including drawing from life), although these are to be limited to the field of ideal pictorial means (Section A).

II Praktisch

Discrimination in the Basic Theory.

A. Before figuration and

B Theory of figuration combined with nature study, general concepts, tension from way to goal

points in turn to the conceptual distinction which we have discussed in connection with the 'Basic theory before figuration', and which in the practical use of the lecture manuscripts are closely linked to one another.

The summary, done in 1925 after the conclusion of the dated written lectures, shows the overall conception, but scarcely the weight and volume occupied by the theories of tonality and colour.

The structure of the contents corresponds to *The thinking eye* and to the present second volume, except for the as yet unpublished text part, complete in itself, under the heading 'Pictorial mechanics, statics and dynamics, and the derivation of the concept of style'.

The reverse side carries the title

II Theory of form – theory and practical exercises (8/6a).

There are sketchy remarks relating to the part on practical exercises.

'(Nature)

'II Theory of form.

'Theory and practical exercises.

'Analysis of formal elements (orientation, designation, terminology).

'Organic and heuristic contexts (rules, construction, structure).

'Directions for abstraction. Directions for abstract thought and form elements (semblance, essence, schema).

'Distinction among elementary, primary and secondary figuration. Elementary and mixed application of pictorial means.

'Exercises relating to the mutual effect of the elements.

'Figurative exercises: Drawing, painting, modelling, space.

'Draughtsmanship, painting and spatial exercises in form.'

The reference 'comes under formal theory II' under the main title on the obverse (cf. pp.44/45) cannot be clearly distinguished from the enumeration on the reverse.

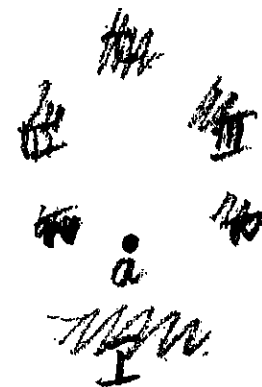
The concepts of basic theory, theory of form and theory of figuration occasionally overlap and essentially delimit the same material.

The first section of a passage on 'The concept of artistic creation' in Volume 1¹ does seek to clarify these distinctions:

¹ Cf. Volume 1, p.17.

Retrospects

¹ In Retrospect 8/10 cf. pp.117 and 119 and the Appendix to p.117.



'The study of figuration deals with the ways that lead to form. It is the study of form; but emphasises the paths to form rather than the form itself. The word *Gestaltung* suggests as much. "Theory of form" (*Formlehre*), as it is usually called, does not stress the principles and approaches. "Theory of formation" (*Formungslehre*) is too unfamiliar. Moreover, *Gestaltung* in its broader sense clearly contains the idea of an underlying mobility, and is therefore preferable.

'For another thing, *Gestalt* (over against form) means something more alive. *Gestalt* is in a manner of speaking a form with an undercurrent of living functions. A function made of functions, so to speak. The functions are purely intellectual. A need for expression underlies them. Every expression of function must be cogently grounded. Then there will be a close bond between beginning, middle, end.'

Klee's retrospect of the last Weimar preliminary course of the winter of 1924/25 again suggests that he kept changing the sequence of his preparatory texts. The logical sequence remains the same in these changes, in which abstract thought and form models alternate with the immediacy of new points of departure that are close to nature.

'In the last Weimar preliminary course in the winter of 1924/25 (8/10), I adopted the following sequence.¹

'Theory of pictorial means (order in a state of rest).

'Line

'Tonality

'Colour.

'A general example of figuration: From source a (seed corn) paths are foreshadowed, with concomitant effects I–IV (from within or without).

'The point begins to move, and an essential construct arises, stemming from figuration.

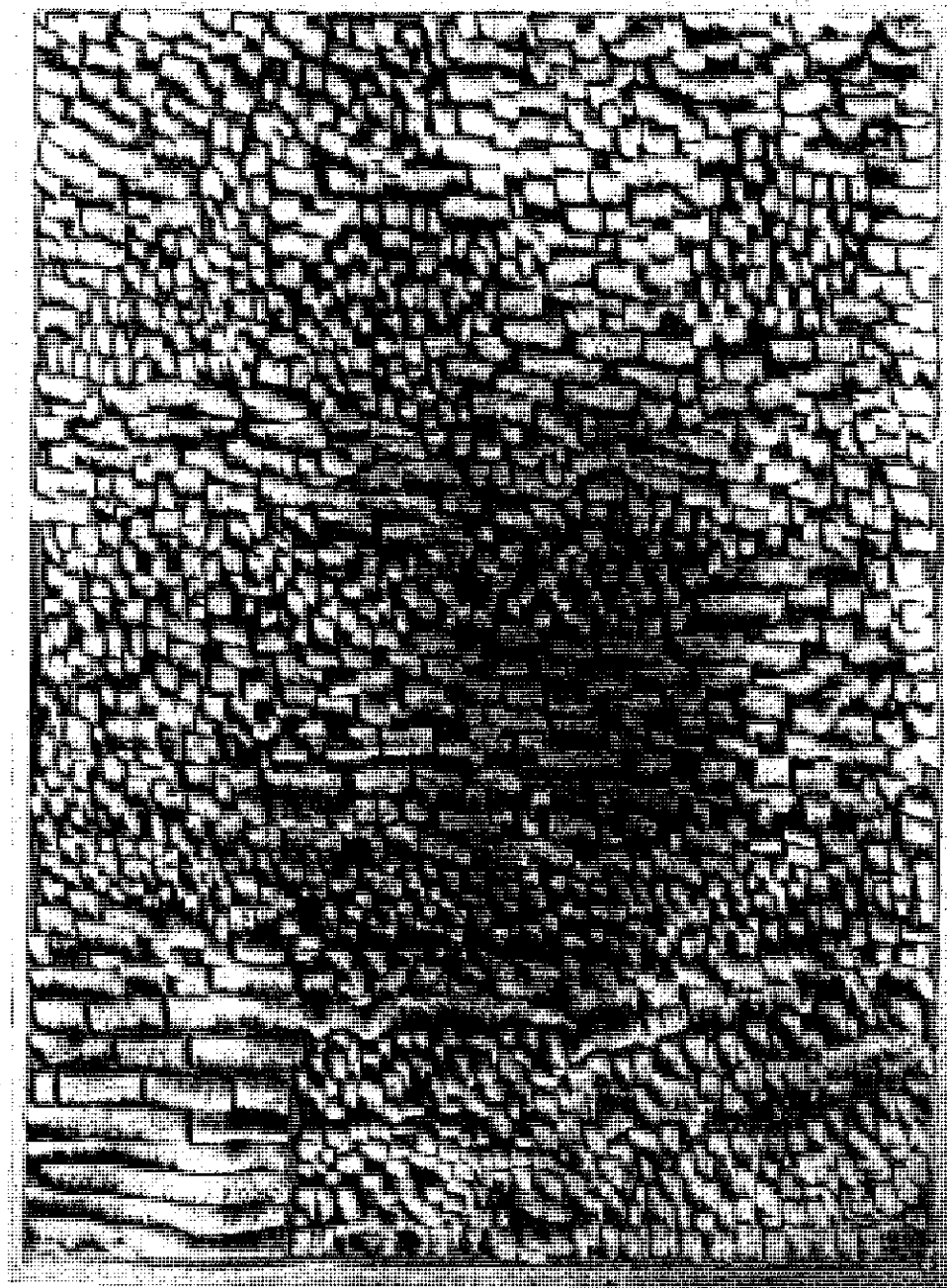
'The end is but part of the essence (the appearance).

'True essential form is a synthesis of figuration and appearance.

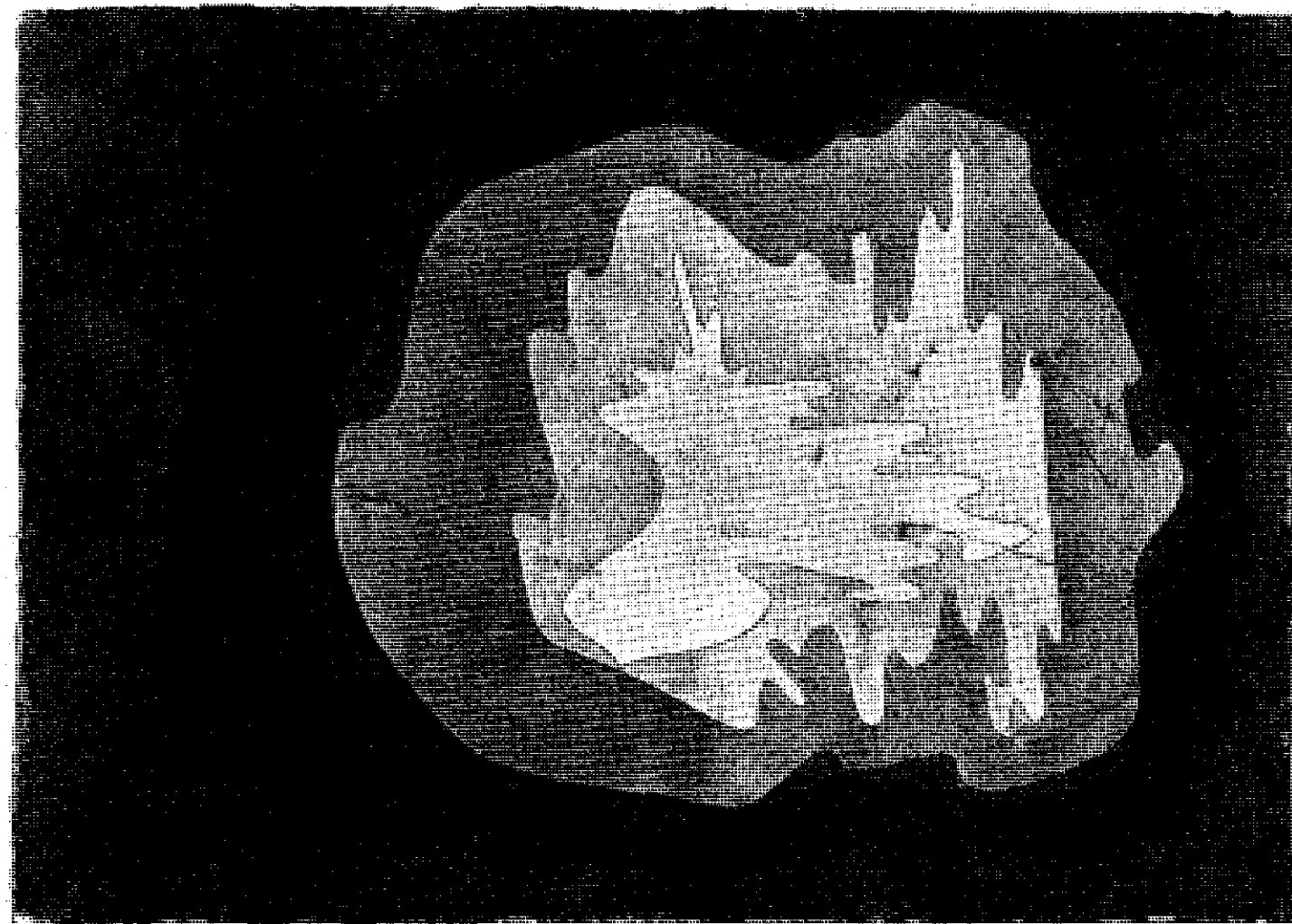
'The snail: Because of its need for shelter, it is joined to a growing shelter.

'The apple: From blossom to fruit ("Casing"!). The violin. The umbrella.'

A second retrospect (8/7), dated 12 November 1926, is reproduced in facsimile on p.56 of this introduction. The text is transcribed on p.149 of the main part. A third retrospect, 'done March 1927', (8/4 and 8/4a), numbered 1–9, is given on pp.120–122, as a summary of essential creative possibilities.



1933/Z9: *Desert of stone*.
Coloured paste on Ingres paper. 48 x 34-3.



1929/ ca 10: *Scented Isle*.
Watercolour. 23 x 31.

There is a threefold division:

I General part (concept of the theory of figuration).

II Planimetric figuration.

III Stereometric figuration.

This threefold division as well as the general organisation apply by and large to all of Klee's theoretical papers that have been preserved.

Sections II and III are voluminous and purely geometrical-constructive in nature.

Pictorial theory of figuration (8/3)

Table of contents

I General part

Chapter

1 Concept of theory of figuration

2 General system

3 Special system

4 Articulation

a Rhythmics

b Execution, etc., etc.

II Planimetric figuration

Chapter

5 Approaches to form, tension processes

6 Elementary form

7 Form in format

8 Form mediation

9 Form structures

10 Composite form

11 Departure from the norm

12 Change of position

13 Irregular form structures

14 Multi-unitary centres

15 Free irregularity

16 Conic sections

17 Wandering centres

18 Pathology

19 Progressions

20 Statics

21 Dynamics, mechanics

22 Interpretations

23 Collection of exercises

III Stereometric figuration

Chapter

24 Stereometric figuration.

I Allgemeiner Teil

Cap. 1 Gestaltungslehre als Begriff

" 2 Prinzipielle Ordnung

" 3 Spezielle Ordnung

" 4 Gliederung a) Rhythmik, b) Faktor etc etc

II Planimetrische Gestaltung

Cap. 5. Wege zur Form, Spannungsprozesse

" 6 Elementarform

" 7 Form im Format

" 8 Formvermittlung

" 9 Formgebilde

" 10 zusammengesetzte Form

" 11 Abweichung auf Grund der Norm

" 12 Lageverhältnis

" 13 irreguläres Formgebilde

" 14 mehrfache Centren

" 15 freie Irregularität

" 16 Regelmäßigkeit

" 17 wandernde Centren

" 18 Pathologie

" 19 Progressionen

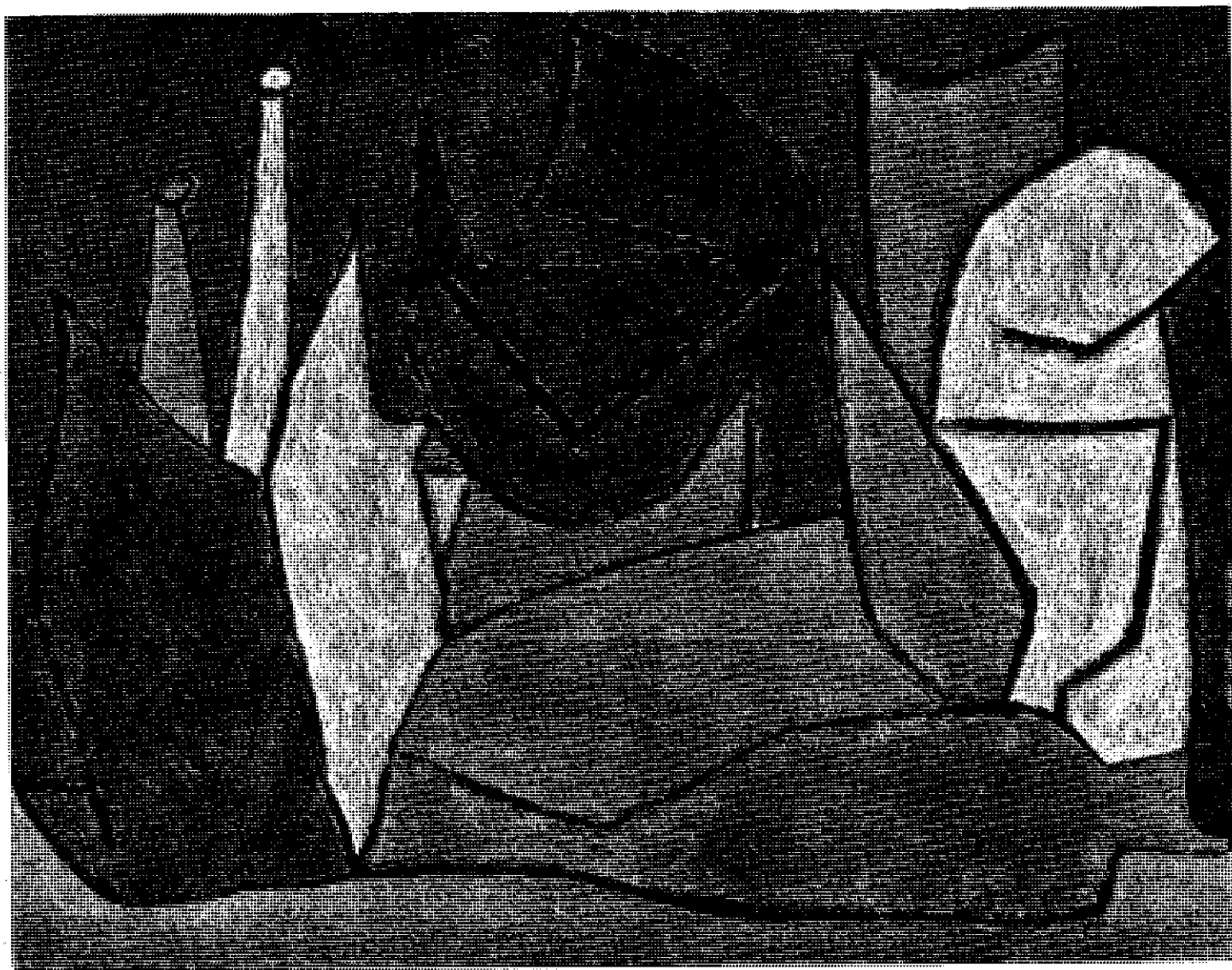
" 20 Übungsanleitung

20 21 Mechanik 20 Statik u. Dynamik

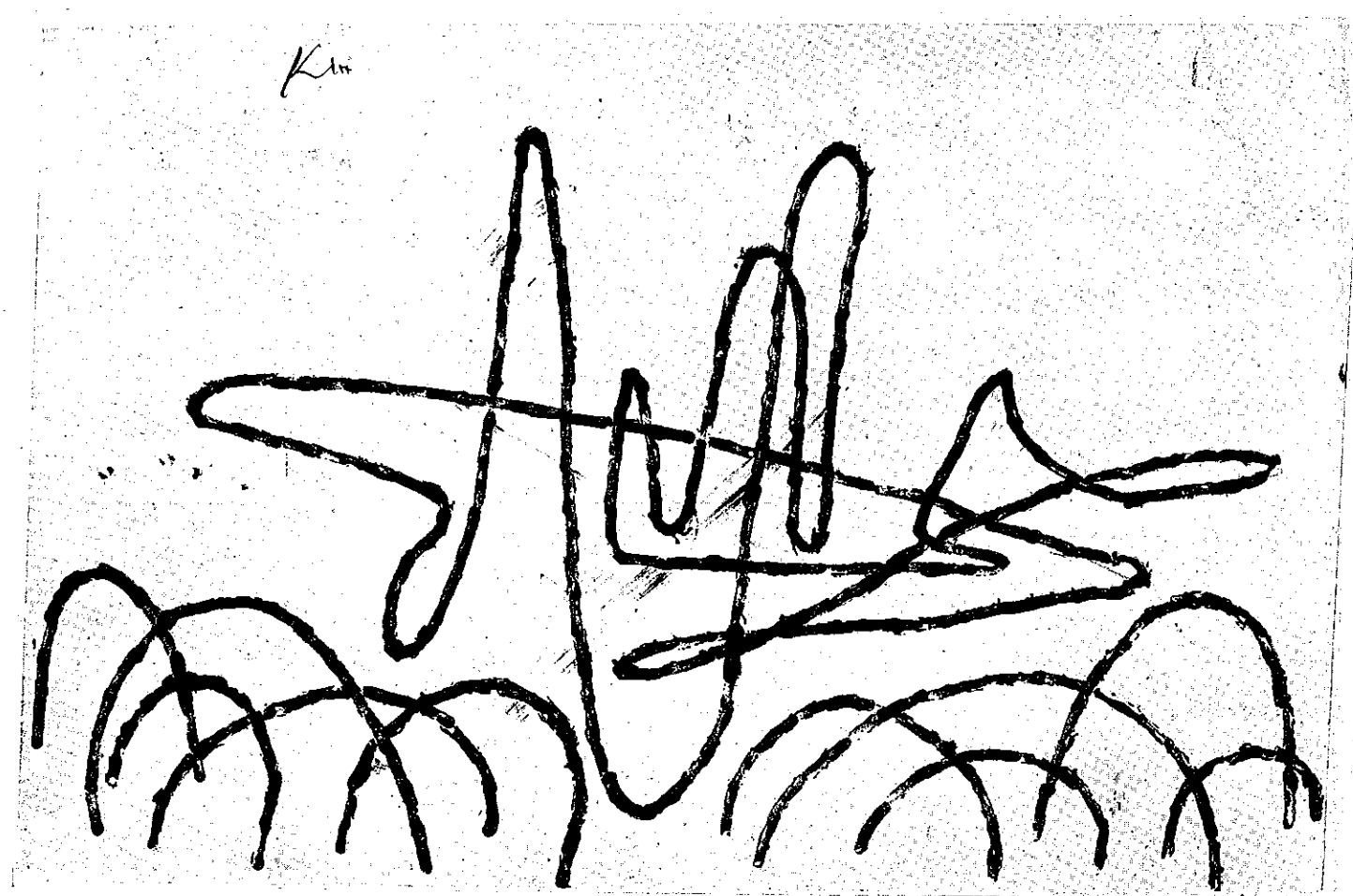
" 22 Zeichnungen

" 23 Übungsanleitung

III 24 Stereometrische Gestaltung



1940/L 8: *Giant plants*.
Coloured paste on paper. 48 × 62.5.



1934/N 4: *Of sere twigs*.
Sepia, brush and pen drawing. 27.5 × 47.2.

Publication of the complete table of contents is planned, but transcends the scope of this introduction.

The two tables that are preserved constitute the sole indications of the structure and logical organisation of Klee's literary estate.

Following Klee's flight from Düsseldorf in December 1933, his voluminous writings and drawings were brought to Berne in a steamer trunk.

This trunk, containing more than 4,000 sheets and the lecture manuscripts, remained in Klee's last studio in the Kistlerweg, Berne, until his death in the summer of 1940.

Frau Lily Klee's¹ numbering of the portfolios and manuscript sheets was done in the order in which the material was found in the trunk after Klee's death, rather than by any system.

In 1956, following publication of the first volume, *The thinking eye* [in the German edition], Paul Klee's heirs gave the whole of his theoretical papers to the Paul Klee Stiftung in Berne; and the Foundation and the editor took over Frau Lily Klee's numbering system without change.

At Düsseldorf, following his departure from the Bauhaus,² Klee was no longer obliged to deliver regular lectures requiring thorough preparation, as was the case during the preceding decade.

In Düsseldorf Klee was given a painting class, combined with a seminar of several hours. There was no prescribed subject matter for the painting class and Klee had a completely free hand.

During the last two years at Dessau, 1929/30, Klee did some geometrical drawings of considerable complexity, which were probably meant to provide an additional basis for his own creative work rather than for use in the classroom: combinations of a higher order, as a logical demonstration and foundation for his own form-giving. They include 'Shifting viewpoint' and 'The subjective way' (Volume 1, pp.173-175). One of these sheets is dated 2 July 1929, others are sketchily signed with a 'K' or 'ee', apparently to underline the special importance Klee gave to them.

Klee was seeking insight into the problems of multidimensional simultaneity, the loosening of earthly statics, for which he sought evidence. These drawings form an important intellectual basis for his later work.

When Klee's Bauhaus period ended in Dessau in 1930, his notes and supplements for his teaching activities began to dry up.

Outlines for themes and exercises were still being written down in Düsseldorf, like the one here cited, dated 27 August 1931.³

¹ Lily Klee-Stumpf (1867-1946). A pianist from Munich, Lily Stumpf became engaged to Klee in 1901 in Tegernsee, Upper Bavaria. They were married in Berne in the autumn of 1906.

² On Klee's departure from the Bauhaus, cf. the quotation from V. Kandinsky, Volume 1, Introduction, p.40.

³ 'Painting class at the Düsseldorf academy (13/1-2).

Cube from nature, and similar things.

a Superficial

b Transparent

c Analytically-plastically reunited.

Cube joined to its environment.

Surface images, cube

a As they appear in the real and the ideal position.

b In transparent polyphony.

Cube bodies, cube-interior space,

Cube-exterior space.

The cube and its reflections.'



1926/U 6: Youthful park.

Oil on gauze on cardboard, 34.3 x 50.2.

12.11.26

Rückblick

8
7

Weg Wesen Erleuchtung

Wesen im Gegensatz zur Erscheinung
Wohnung im Fruchten

Wesen des Apfels des Schneckenhauses des Menschenhauses

Triebkräfte (active lineien)

Begriffe: Triebformen — Grenzformen
dazu das abstracte: Activ-linear — linear-metall

Triebkräfte sind innen (esoterisch)

Grenzen sind aussen (exoterisch)

Inneres/Ausseres

Das Innere unendlich * bis zum rätsel des Innersten,
dem geladenen Punkt, einer Art facit des Unendlichen
(das Ursächliche) Vergleich aus der Natur: das Samenkorn
das Äussere ist endlich, d.h. es ist das Ende der Trieb-
Kräfte, die Grenze ihrer vom Ursächlichen dictierten
Auswirkung. Man kann es auch das Wirkliche, das Sächliche
oder das Dingliche nennen.

Man kann auch sagen erotisch — logisch
Eros — Logos

Handwritten notes, 8/7
For transcription, see p.149

Following his return to Berne in December 1933 and the complete reorganisation of his living and working situation in 1934, Klee made no further additions to his papers dealing with the theory of art.

Frau Lily Klee states that during the years in Berne Klee did occasionally take out one of the portfolios and revise certain problems; but despite his expressed wish that his theoretical papers be published after his death, he did not himself prepare any inventory of them, nor did he leave any general outline of their context.

The summary tables of contents that have been preserved therefore provide the only coherent indications of the systematic structure of Klee's theoretical work, as he planned it in the course of his years at the Bauhaus.

Nevertheless, many uncertainties remain, in the absence of such a general outline, even taking into account such numbers and titles as Klee did provide for certain sections and portfolios among his papers.

The actual period during which these theoretical writings were done began in 1921, after Gropius called Klee to the Weimar Bauhaus (October–December 1920), and ended when he left Dessau in 1930.

The negotiations that resulted in his appointment, on 1 April 1931, in Düsseldorf, had begun as early as 1929, and with them his interest waned. He emphasised that in the long run he was finding it hard to combine creative work and teaching at the Bauhaus. He seemed to be already inwardly adjusting himself to the impending change.

Some additions to the papers were still made in 1929/30, but these included scarcely any major new areas.

The main portions of the written as well as the geometric papers were thus done in the nine years from 1921 to 1929, side by side with Klee's teaching and creative work.

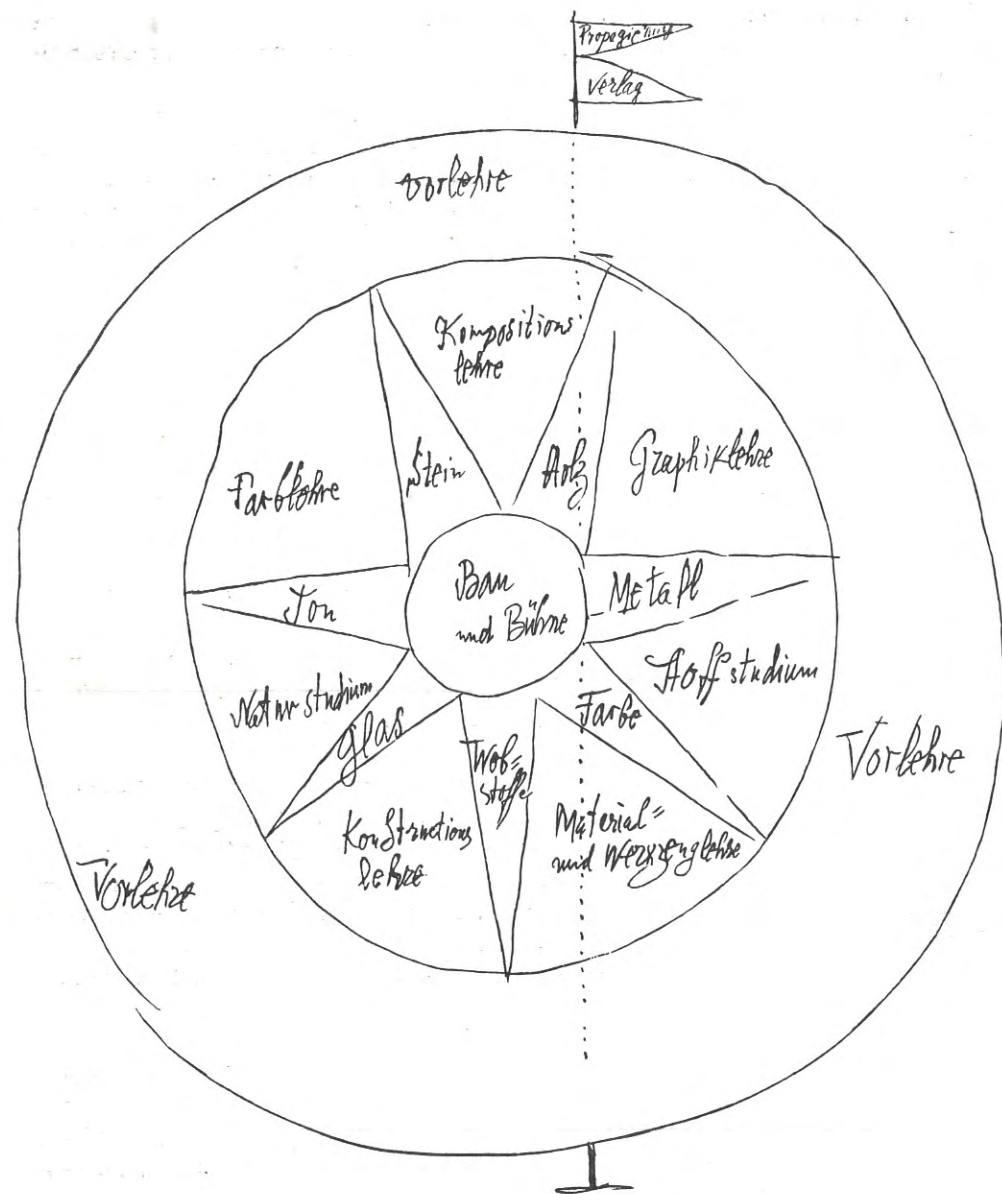
The main purpose of the present survey of Klee's whole conceptual approach to his work as a teacher is to integrate the scattered papers, making comparisons possible for the first time.

Many among Klee's surviving Bauhaus students should be able to supplement these papers, either from memory or from notes.

During Klee's decade at the Bauhaus a sweeping correspondence developed between his theoretical and creative work.

To compare these two areas would be a task of considerable interest as well as difficulty. Such a comparison might show the degree to which Klee's theoretical thinking influenced his creative work, thus providing graphic evidence of just how much Klee the artist got from Klee the teacher.¹

¹Such a scheme was outlined for the Stuttgart show of 1968, commemorating fifty years of the Bauhaus. Insurmountable difficulties kept it from being executed.



Scheme of Bauhaus set-up

Clockwise:

'Preliminary theory	Wood
Compositional theory	Metal
Graphic theory	Colour
Study of materials	Woven fabrics
Study of materials and tools	Glass
Construction theory	Clay
Nature study	Stone
Colour theory	

Cf. a similar scheme on p.28 of the catalogue of the 50 Jahre Bauhaus show, Württembergischer Kunstverein, Stuttgart, 1968 (editions in several languages).

Cf. also a scheme of Bauhaus organisation dating from 1929/30 reproduced on p.33 of the introduction to Volume 1.

Concerning the editing of Volume 2

The editor's main task, in bringing out Volume 1, was to provide access to the foundations of Klee's formal and pictorial world and to demonstrate the correspondence between his thinking and creative processes.

The goal was to make the contemporary world aware of the sweep of Klee's ideas. His paintings were already widely known, but only a very few knew that Klee was a thinker with the gift of precise conceptualisation and formulation. Klee has been for too long assigned a place of intellectual and sociological insignificance. Cubism and the Bauhaus alone seemed to provide a basis from which the formal idiom of abstract art could be given the broad scope in creative history it deserves in the light of Klee's concepts.

Typography

¹ Laszlo Moholy-Nagy was responsible for the typography of the *Pedagogical Sketchbook*. With Gropius, he was also editor of the Bauhaus books.

Guidelines for the typography of Volume 1 were provided by the series of Bauhaus books, including the *Pedagogical Sketchbook* edited by Klee himself and published in the series in 1925.¹

Klee actually prepared the final designs for the *Pedagogical Sketchbook* from his own rough sketches.

Volume 2 seeks to get away from the model of the Bauhaus books and a certain geometric rigidity which they exemplify. All of Klee's examples and drawings are reproduced in facsimile. The goal was to present the original intact, insofar as possible.

Even the alternation of casual sketches and precisely executed drawings has been retained, and some of Klee's notes are also shown in his own hand.

Unlike the manuscripts for the first volume, *The thinking eye*, the texts for *The nature of nature* are on loosely assembled sheets, which are in a rather parlous state, owing to the poor quality of paper during the postwar period and the period of inflation in Germany. Done for the most part in pen-and-ink, the texts and sketches show through the crumbling brownish woodpulp pages. It was often necessary to touch up the sheets to obscure the traces showing from the other side.

Constructive and geometric drawings

The constructive drawings shown in facsimile are Klee originals, reproduced unchanged. They are done in very fine pencil lines, often in two colours, black and red.

The passages and the form and figuration examples relating to nature study have been extracted from the entirety of Klee's papers. This is true also of the constructive-geometric drawings and formal approaches belonging to this sphere or calculated to throw light on it.

Volume 2 is thus not limited to the lecture notes proper of the years 1923/24. Related areas, problems and notes have been included, giving the book more of a workshop character and presenting parts of the voluminous posthumous theoretical papers for the first time. The road from nature study to constructive-geometric figuration (from naturalistic or objective representation to geometric interpretation) opens up the range and polarity of the kind of creative thinking that leads to abstraction and its synthesis. This polarity characterises the duality of seeing and knowing, which Klee, in 1923 in *Wege des Naturstudiums* (Ways of nature study), captured in this passage: 'An object expands beyond its semblance, by virtue of our knowledge of its interior constitution – by our knowledge that any thing is more than its exterior reveals.'

All portfolio and page numbers for the texts and drawings in the present volume relate to the Klee papers. The first figure gives the folder or chapter, the second the page – for example, 17/118a (p.9). The numbering system is the one which Frau Lily Klee applied to the papers after her husband's death. The running text and drawings in *The nature of nature* are not designated separately. Unlike the supplements scattered throughout the papers, they are readily looked up in the original manuscript 9/1–71. A few illustrative examples have been repeated from the 1200 in Volume 1, where this was necessary to make the context clear. They serve to show that some of Klee's forms have more than one function and validity at more than one level.

To cite a few aspects:

In planar permeation
or spatial transparency.
In structural articulation,
as a mobile process (function).

Certain notes relate to the textual and pictorial context of Volume 1.

Sources

370
21
80
350
450
400
150
1471

Parallel layout

Structure and dates of the General system

Cf. the Dessau Bauhaus schedule of 1928/29, pp.38–41 of this introduction.

Verbal statements, basic algebraic-mathematical examples from the basic theory, geometric-constructive approaches, demonstrations of form, form-giving and figuration and actual creative work are all shown side by side with the pictorial work proper. This kind of confrontation often shows the striking correspondences and multiple levels of the various media. The arrangement also brings out the equivalence of thought and creative processes, relating Klee's formal ideas directly to his artistic output. In the 'Study of the creative stages of the work', analysis and synthesis often appear as ranges of tension, which supplement rather than mutually exclude each other.

The chronological sequence of lectures and problems does not always conform to the organisation of the subject matter. The reason is that Klee, in his lectures, included material from the 'Theory of form production' (Volume 1), using it alternately with parts of the 'General system'. According to whether he was teaching the preliminary course or advanced students, Klee altered his syllabus and redistributed the emphasis given to nature study or formal theory.¹ Nine text portions and four problems from the 'General system' lectures are dated. Six general subjects are undated, as are the supplementary notes on nature study and constructive approaches to composition, assembled from the papers found in Klee's literary estate.

A few subjects and two exercises do not fit into the general structure which follows in the main the following basic scheme:

- 1 linear – (single dimension)
- 2 planar – (two dimensions)
- 3 spatial – three-dimensional or the spatial-objective case – (three dimensions)

Second to observance of this basic scheme, the material is structured by organic order and ranking of the subjects.

Chronological sequence	Tuesday	23 October	1923	p. 3	
	Monday	29 October		5	
	Tuesday	30 October		23	Exercise
	Monday	5 November		25	
	Tuesday	6 November		39	Exercise
	Saturday	10 November		223	
	Tuesday	20 November		289	Exercise
	Tuesday	27 November		43	
	Tuesday	4 December		69	
		11 December		153	
		8 January	1924	327	Exercise
	Tuesday	9 January		253 also 327	
	Tuesday	15 January		335	

Contents by main themes

Forces of form-creating and form-articulating nature
 Elements of structure and articulation
 From the structural element to higher proportions
 The orbit. Composite media
 Individual proportions, related to one another and the whole
 Vivid creation of individual proportion
 Dividual and individual structural elements
 Dividual-individual synthesis
 Structural symbols and articulation elements, linear and planar
 The simplest synthetic order – the chessboard
 Governing proportions as final form
 Form determination and form realisation
 Linear, planar and spatial structures
 Structure and individual as contrasts
 Tripartition of pictorial means
 Theory of tonality

The lecture of 10 November 1923, 'Structural symbols and articulation elements, linear and planar, the chessboard' (p.223), has been substantially expanded; and since (with weight and measure) it concerns area, it has been put at the end of 'Elements of structure and articulation'.

Two exercises were removed from the dated context and placed more logically at the end of appropriate general subjects.

The dates of the lectures have been left unchanged.

Evolution of a theme:
Trees as rendered by Klee
from his youth to his maturity

Paul Klee was born on 18 December 1879 in Münchenbuchsee near Berne. The earliest drawing reproduced here dates from 1896, when Klee was a 17-year-old student at the *Gymnasium* (high school) in Berne, from which he graduated in 1898. The Munich studies fall into the years 1898–1901, when he was working with Knirr and Franz von Stuck. He was appointed to the Bauhaus in Weimar in 1920. In 1931 he became a professor at the Düsseldorf State Academy. In 1933 he returned to Berne. Klee died on 29 June 1940 in Muralto-Locarno.

1896/Estate: *From the Elfenau*.
Pencil drawing from a sketchbook.



1897/Estate: *Winter landscape on the River Aare near Berne.*
Pencil. 10 × 13.



1899/Estate: *A group of trees.*
Oil on cardboard. 35 × 49.



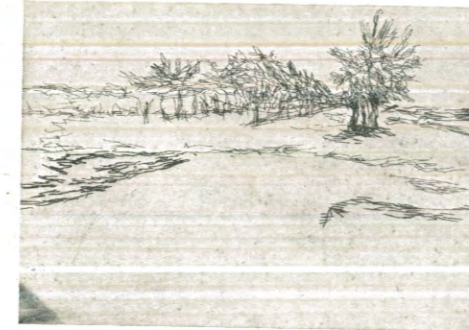
1900/Estate: *Untitled (Landscape on the River Aare).*
In five parts. Oil on canvas. The middle part.
Each part 144 × 48.



1906/Estate: *Scene in the Elfenau near Berne.*
Oil on chalk-grounded paper. 33·5 × 24·5.



1910/Estate: *Country lane with young trees, first version.*
Etching. 15·2 × 21·7.



1912/166: *Landscape, yellow horse and purple signpost.*
Pastel on engraving paper. 15 × 18·5.



1929/y 4: *Young palm tree.*
Pencil. 32·9 × 20·9.



1933/L 18: *Tree of wire and small rods.*
(24 each)
Pen-and-ink. 43 × 32·3.



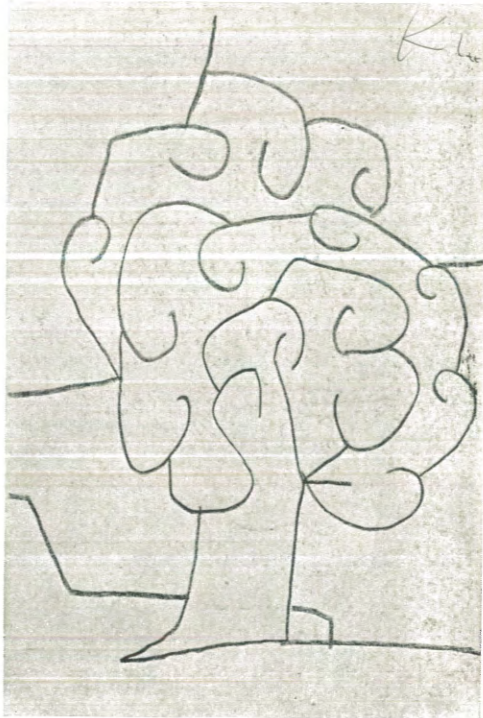
1938/M 4: *Trees.*
Charcoal. 44 × 30.



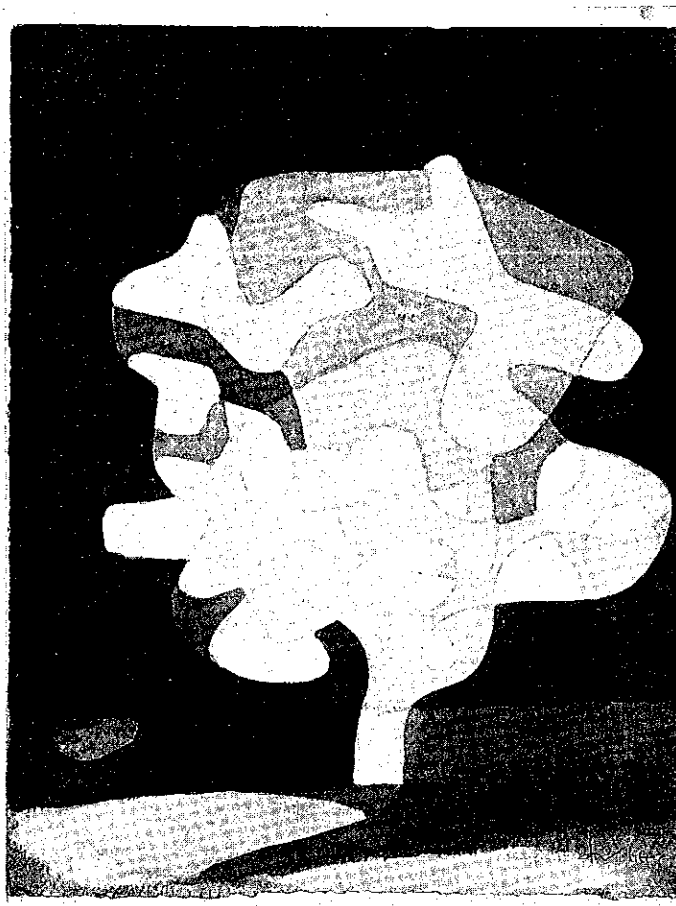
1940/T 6: *Fir tree.*
Zulu crayon. 29·5 × 21.



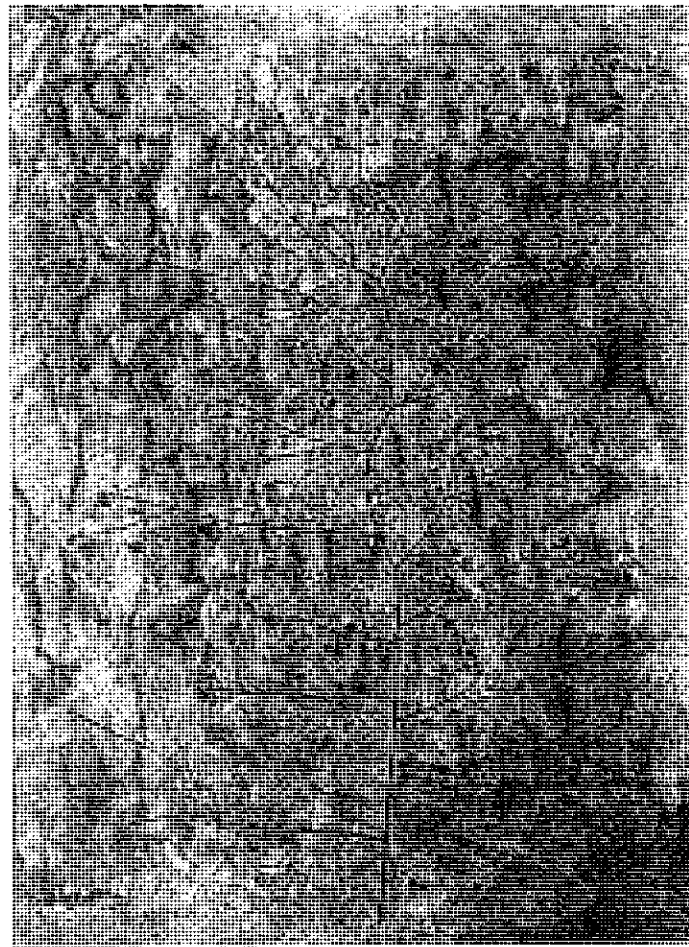
1940/V 17: *Tree U.*
Zulu crayon. 29·5 × 21.



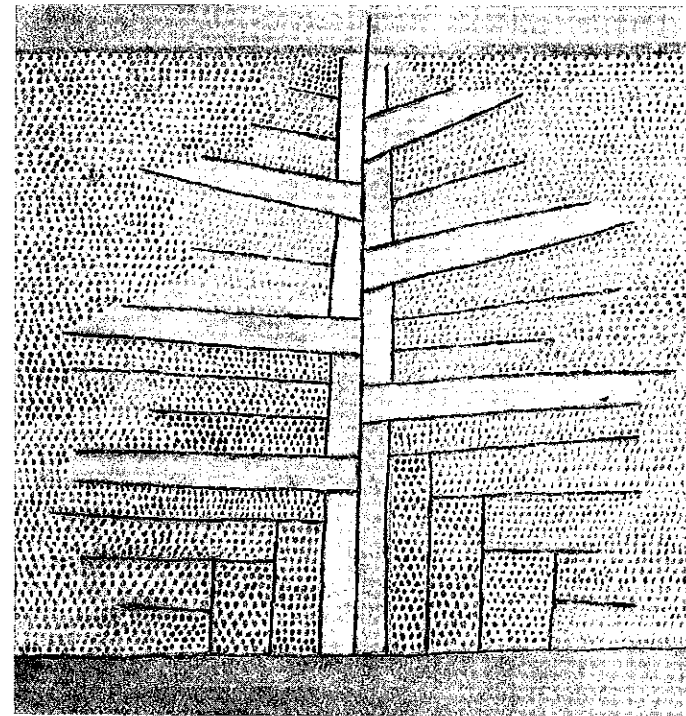
1929/x 10: *Fig tree*.
Watercolour. 28 x 21.3.



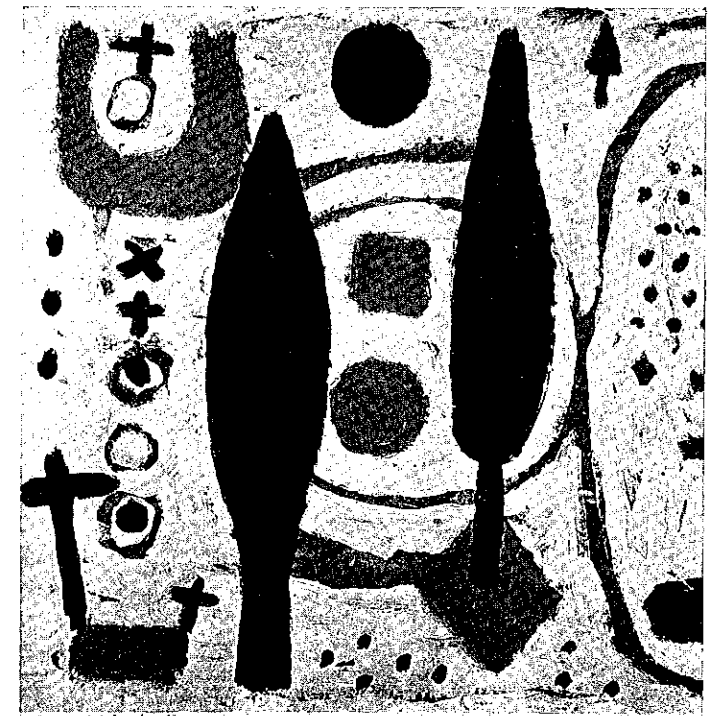
1932/113: *Young tree (Chloranthemum)*.
Watercolour with plaster on chalk-grounded paper.
48.4 x 36.7.



1932/k 8: *Lone fir tree*.
Oil on cardboard on plywood 53 x 51.

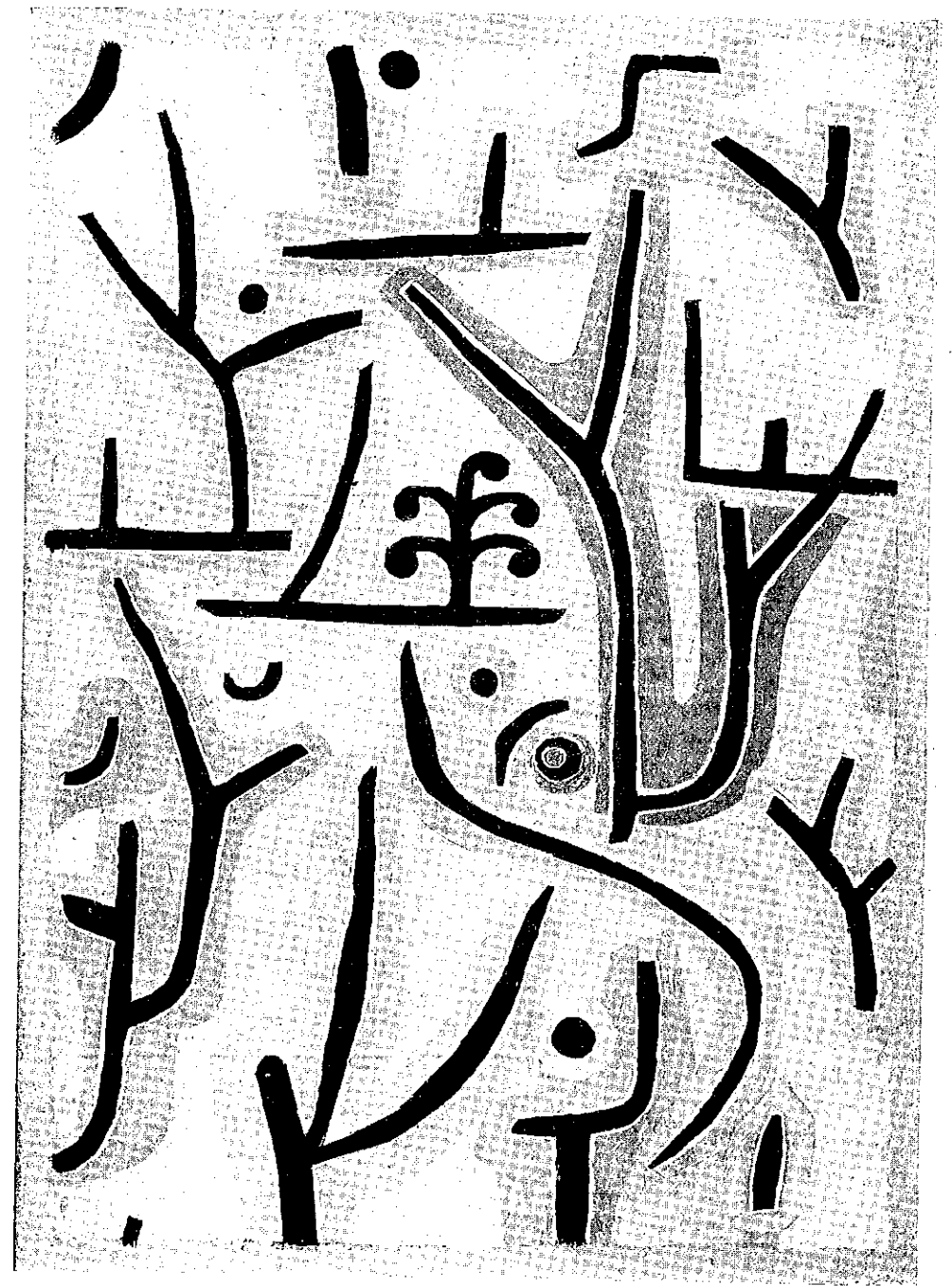


Detail from 1939/KK 13: *Cemetery*.
Coloured paste on paper. 37 x 49.6.





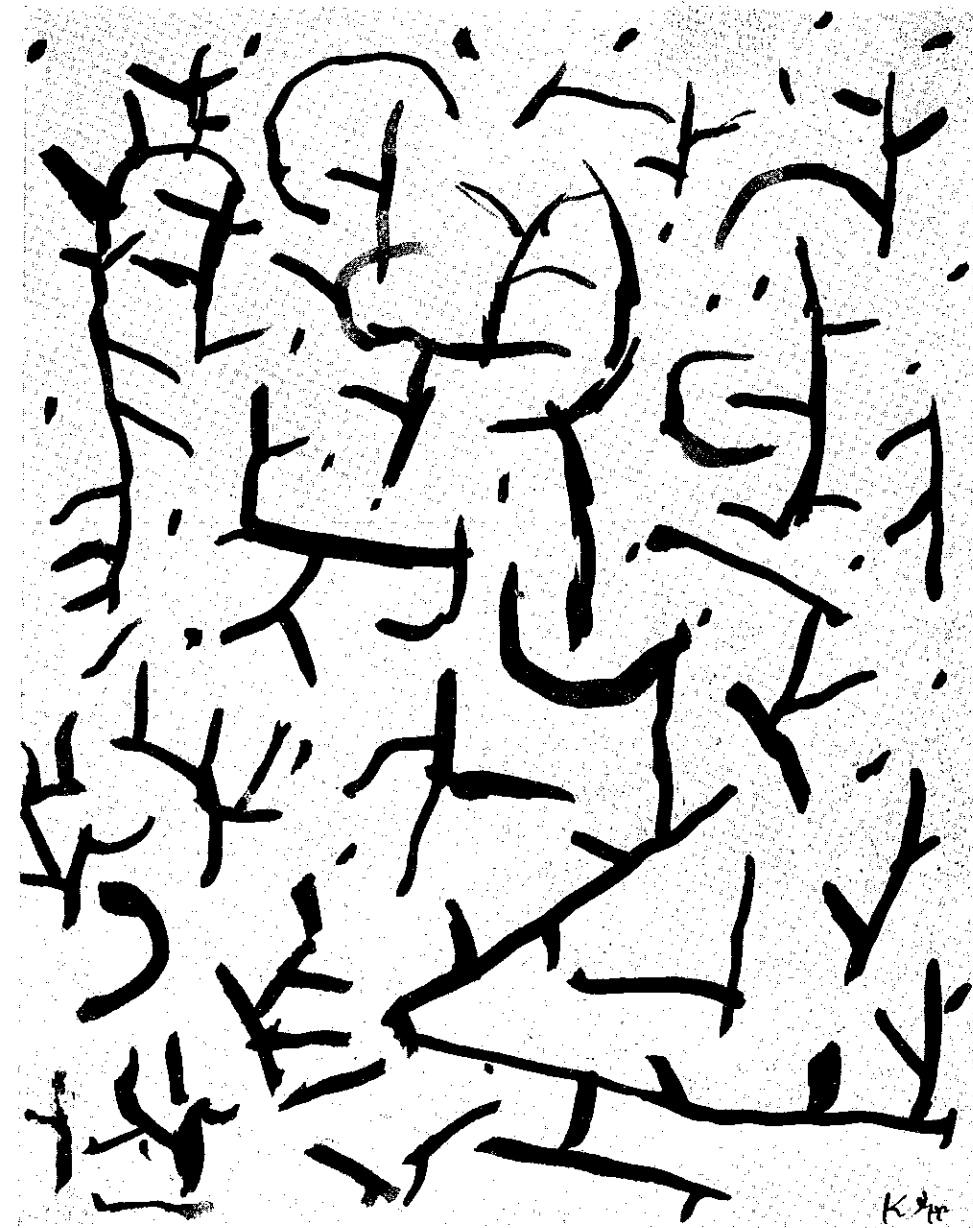
1939/CC 17: *Hunting tree*.
Oil on canvas. 100 x 80.



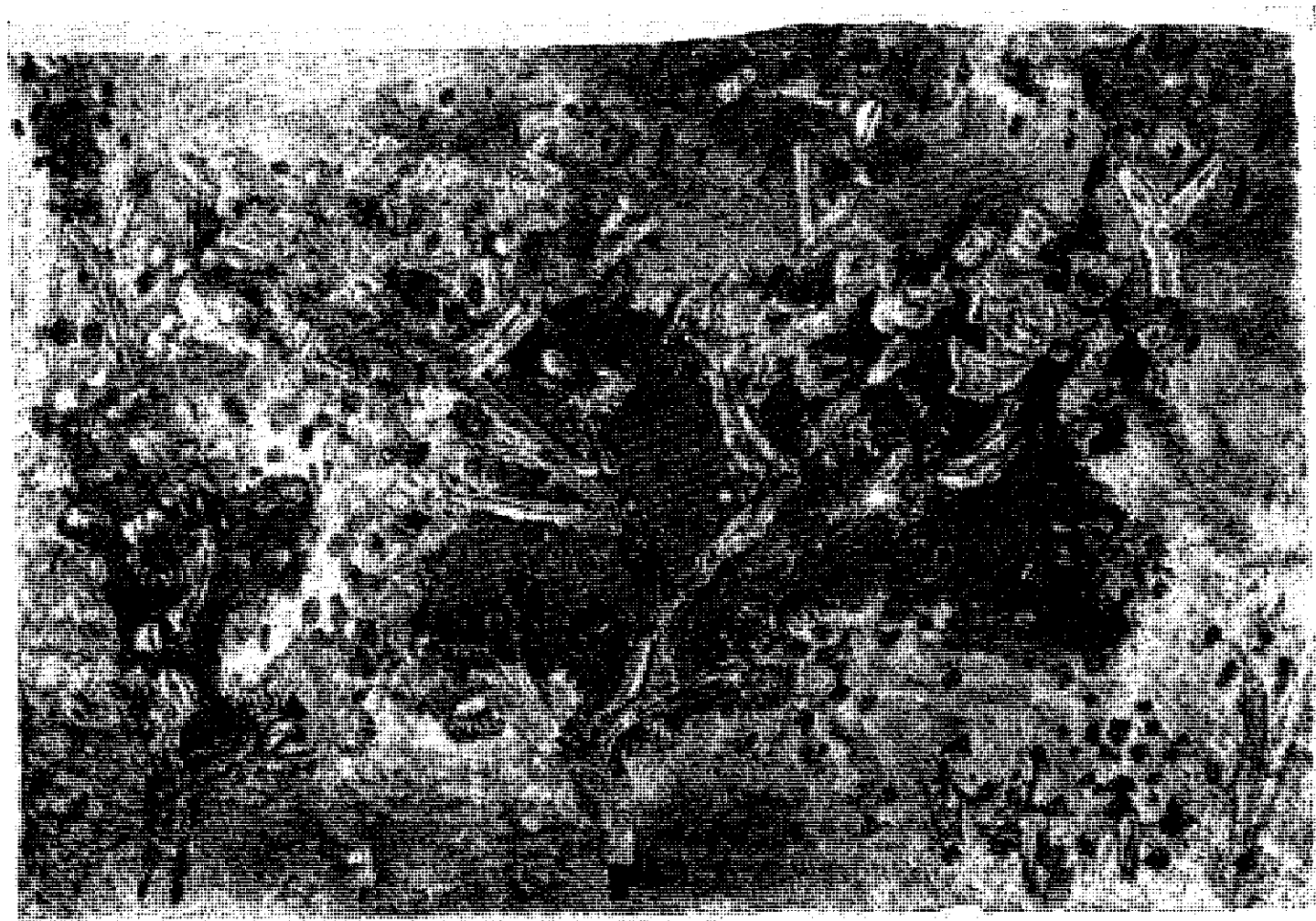
1938/J 9: *Park near Lu[cerne]*.
Oil on newspaper on jute. 100 x 70.



1931/N 7: *Trees in October*.
Oil on paper. 35.7 x 46.8.



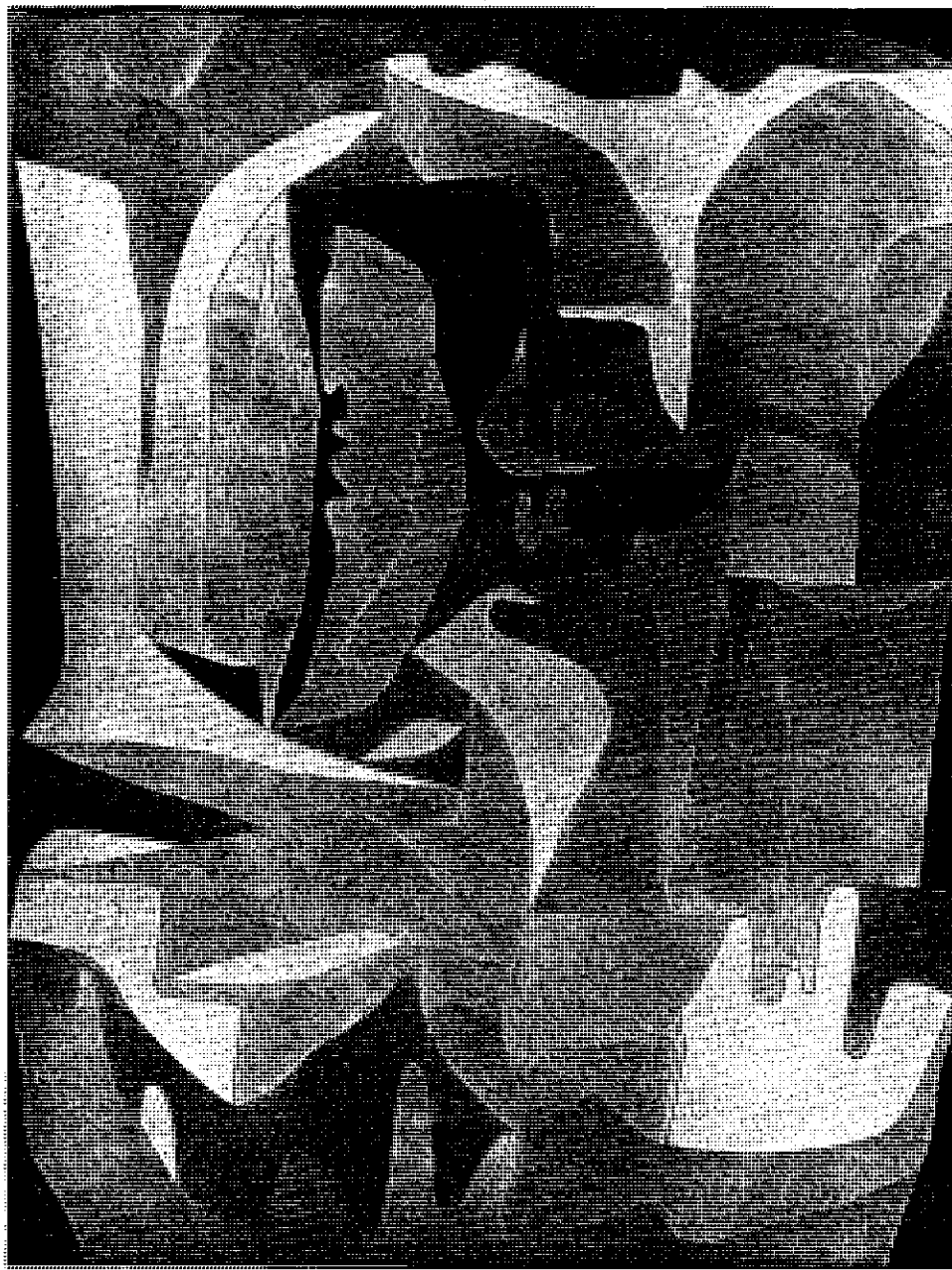
1938/R 6: *Overgrowth*.
Black watercolour. 27 x 21.5.



1931/M 4: *Aged trees*.
Oil and mixed media on paper. 31 × 45.4.



1938/qu 2: *New growth*
Black paste. 27 × 21.



1934/k 3: *Landscape near Pilamb*.
Watercolour and pen-and-ink on Ingres paper.
04 x 48.3.



1939/k 20: *Botanical garden (exotic trees section)*.
Coloured paste and watercolour on paper. 14 x 20.



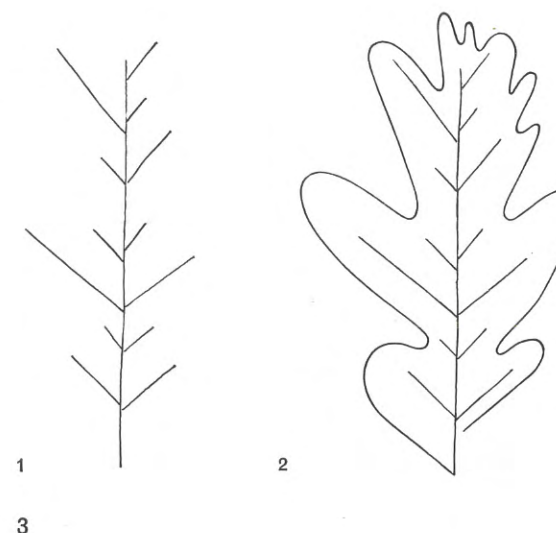
1934/T 13: *Sparse foliage*.
Mixed media and watercolour. 32 x 48.

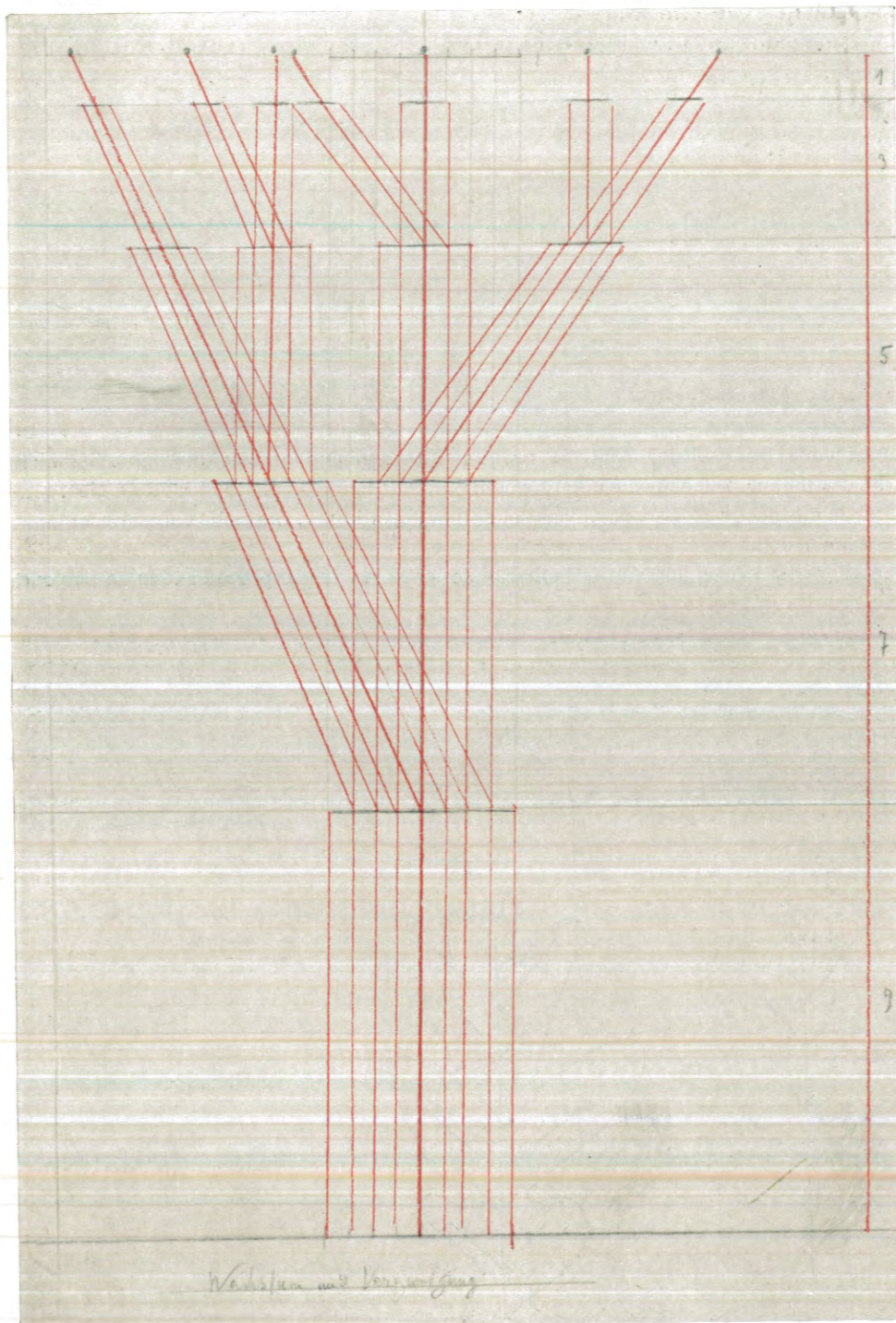
Movement in the terrestrial realm requires force
Line and plane and their organising forces

Tuesday, 23 October 1923

Draw leaves from nature, taking into account the organising forces of the veins. Combine with an attempt to classify the differing compartmentalisations of the various species. Growth means the progression of matter by new accretions to the static substance. Movement in the terrestrial realm requires force. Analogy with stroke, line and our other pictorial elements like plane or tone and colour, etc.

- [1] Veins of a leaf.
- [2] Same interior form with outline 9/12b. 9/12b. See Volume 1, p.64.





Growth and ramification [1]
(natural growth).
17/118a.

¹ Crossed out: '... still a certain main type may be established, stem shorter, central vein longer.'

Base and dividing lines (horizontal zones of spread and progression) from the figuration example 'Growth and ramification' [1], represented separately [2].
17/119.



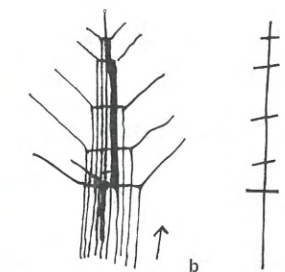
Primary forces of form production,
form-creating and form-articulating nature
Linear forces and planar form
Part and whole

Monday, 29 October 1923

A leaf is part of the whole. If the tree is an organism, the leaf is an organ. These small parts of the whole are again articulated in themselves. In this articulation, articulate ideas and relations prevail that reflect on a small scale the articulation of the whole.

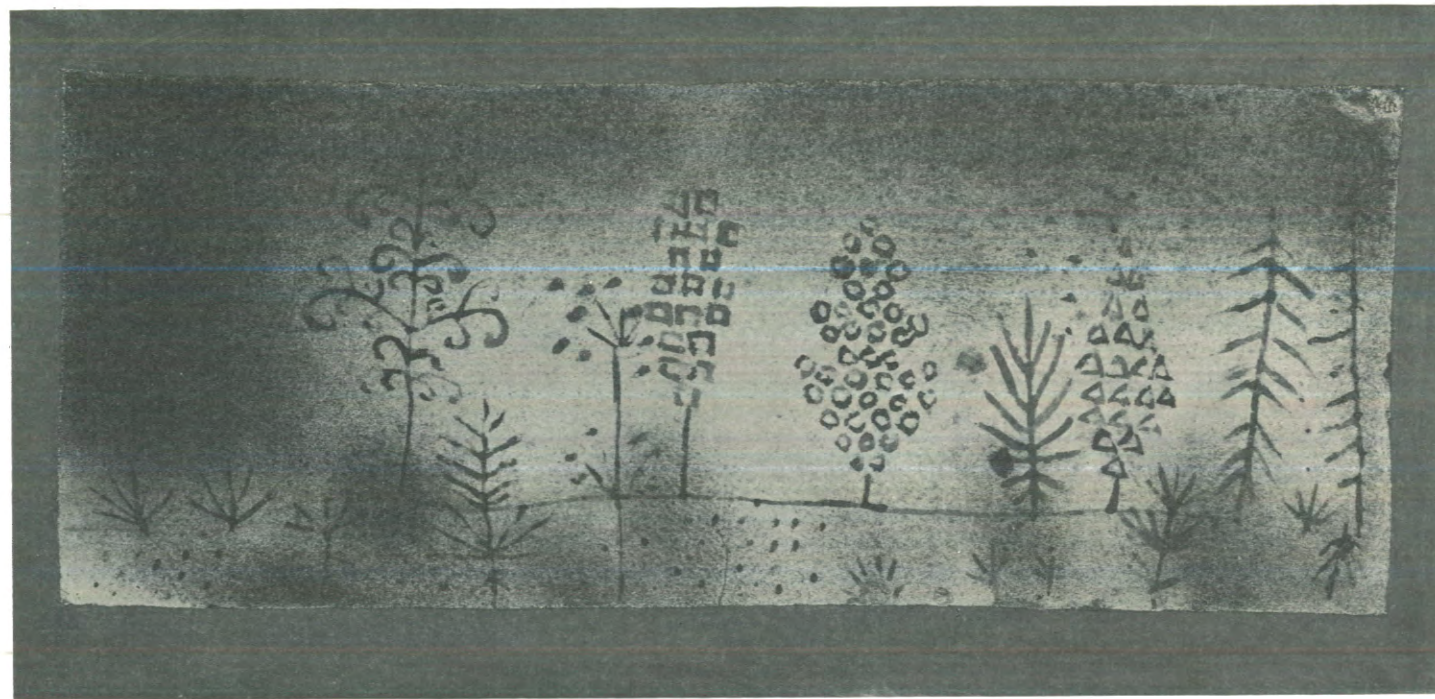
The articulation of the whole is defined by roots, trunk and crown. The articulation of the crown is defined by branches, twigs, leaves, flowers, fruit. The articulation of a leaf is defined by stem, veins and leaf tissue.

Leaf, stem, and veins belong together, especially stem and central vein, indeed, the central vein may be described as a continuation of the stem. This whole line is thus divided into stem and stem continuation.

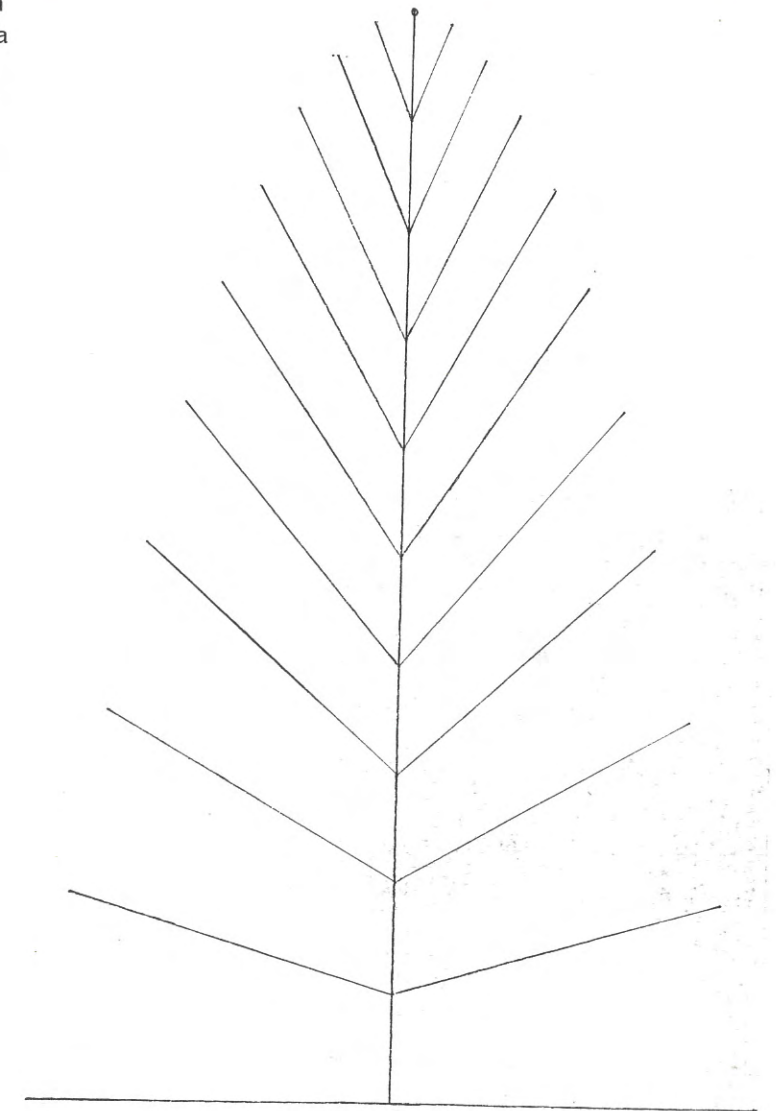


The subdivisions of this line are ever different in the different leaves,¹ but even division is certainly rarer than uneven. This division of the main line of leaf stem to central vein, however, is not the only one [a]. In the simplest type, new divisions ensue by the branching of new veins to the left and right, which additionally articulate the central vein or leaf spine. Note that the line is charged with force especially at the point where it must produce as many branchings as possible, namely at the beginning, close to the stem [b].

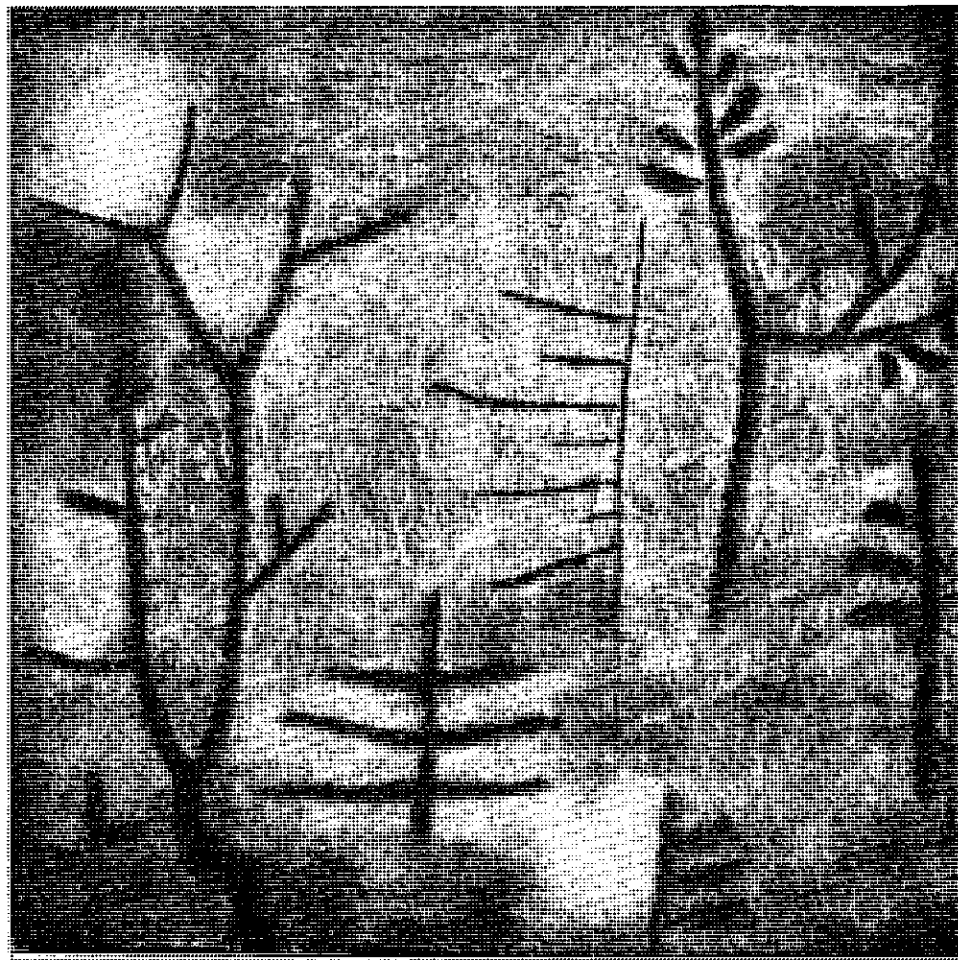
1928/N 9: *Row of trees in a park.*
Watercolour on plaster-grounded gauze. 19 x 49.



Diagonal motion
within a parabola
at a rate of 1:3
(parabola tree).
16/228.

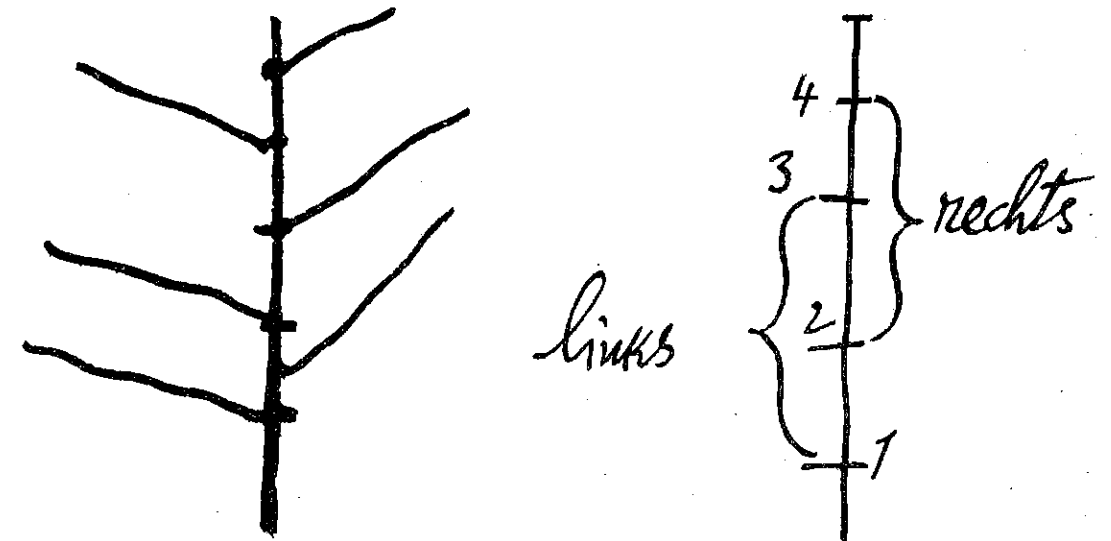


In this way reciprocal relations arise between the articulating intervals and the strength or force of the lines (proportionate measure and proportionate weight). The lateral veins, moreover, undergo their own articulation by measure and weight. The same applies to their further branchings on both sides. The intervals and the dynamic forces dwindle to the point of no return. The tracing eye can no longer distinguish the last ramifications as lines and abandons the pursuit. The particles become confusingly small and are sensed as planar elements rather than linear forces.

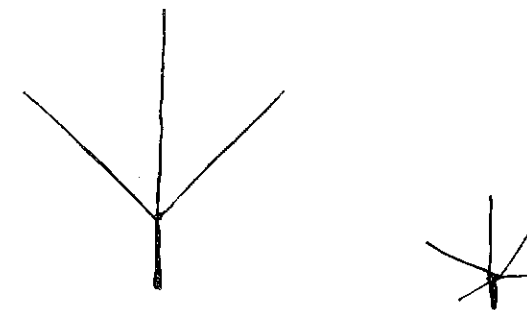


1935/N 12: *End of the forest*.
Oil on chalk-grounded gauze. 46 x 46.

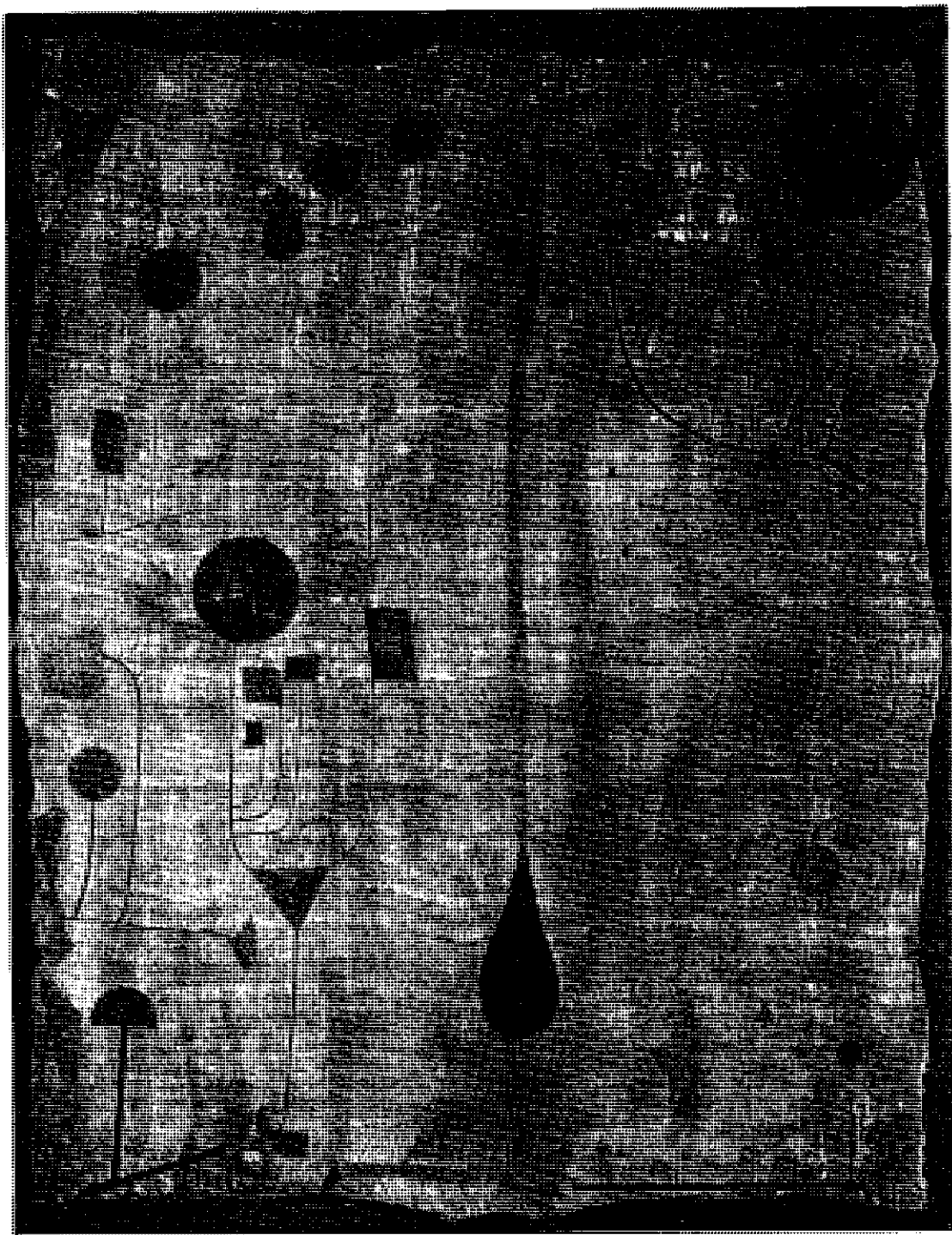
Reverting to the main line, we note that the branchings may arise, not at the same points, but alternately on either side, a form of articulation that emphasises the element of halving the area, though even without it the basic two-dimensional organisation is one of halving.



For the left side, points 2 and 4, for the right side, points 1 and 3 are of subsidiary importance. Things are even more complex with leaves that combine the alternating and opposing forms of articulation. Yet this is still a rather primitive basic type. Another major type departs from the pattern in that initially two of the side veins seek to appropriate the power of the central spine.

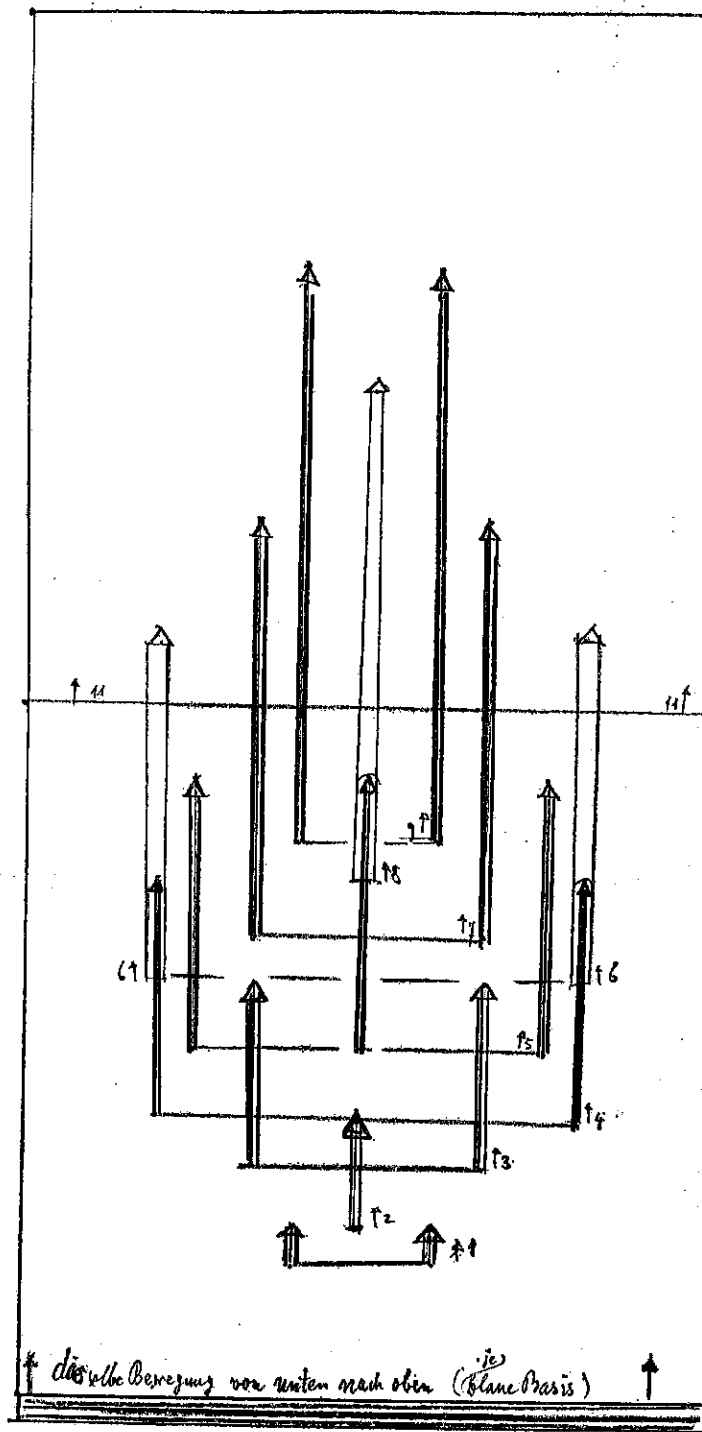


In still other types two further veins usually follow suit. These side veins embark on their mission at an early stage, asserting their autonomy at the very point where leaf joins stem.

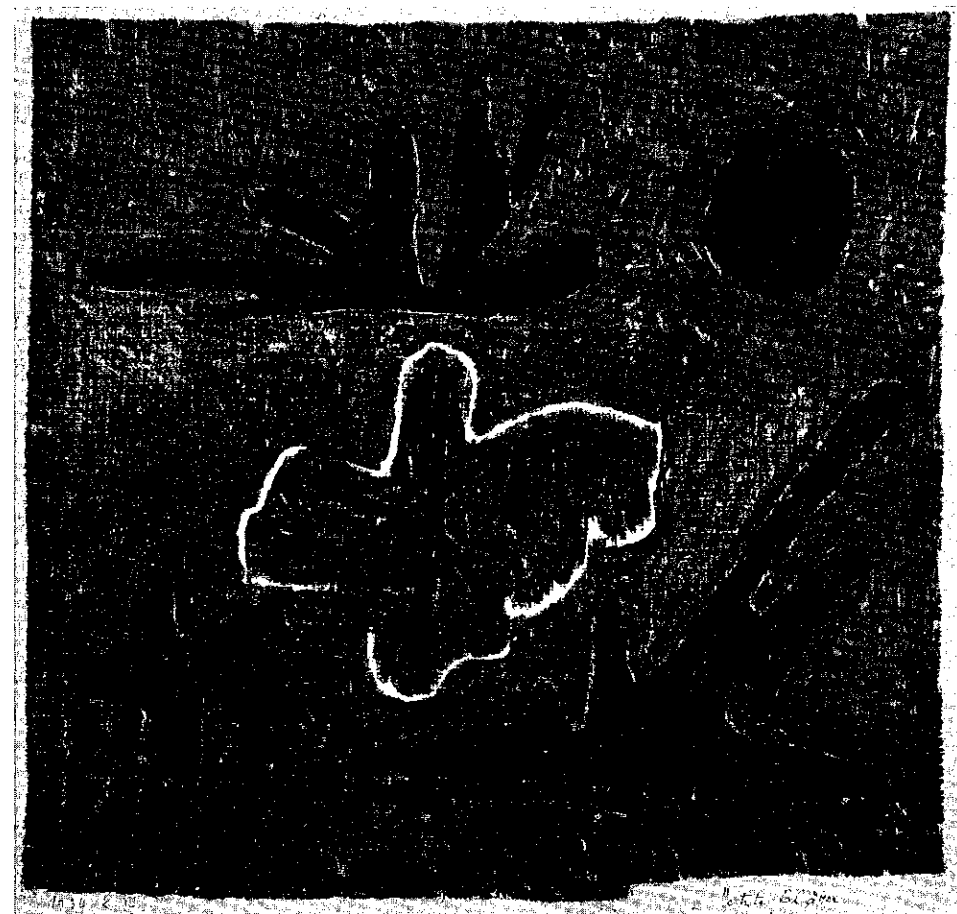


1930/263: Fruit on red background.
(The fiddler's kerchief.)
Watercolour on silk on
cardboard. 61.2 x 46.2.

Progressive motion,
the same motion from bottom to top
(from square to oblong,
each on blue base¹). 17/116.
From Progressions 17/106-120.



¹ In the original the horizontal base lines are drawn in blue.



1934/k 14: *Last leaves*.
Pastel, red chalk and charcoal on cotton. 33.5 x 38.

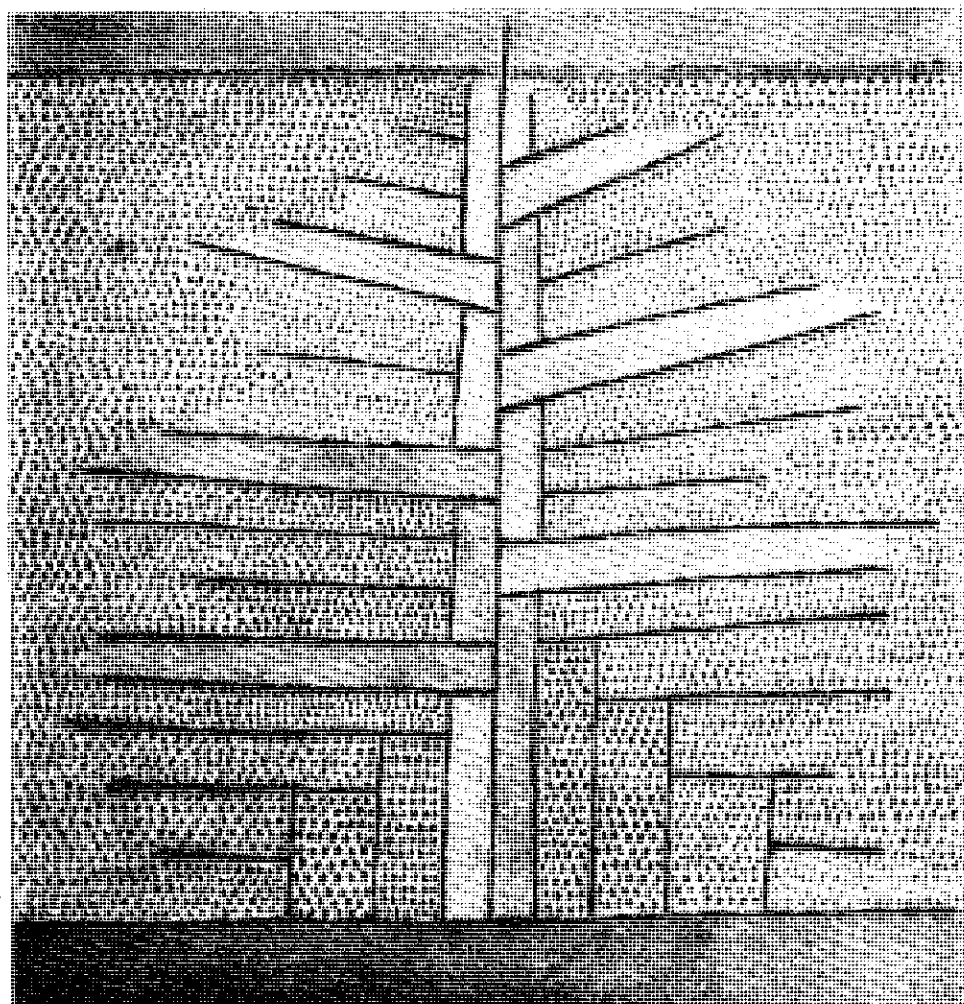
¹ Crossed out: 'struggle'.

1932/Estate: *Vegetational*.
Oil on canvas. 67.5 x 90.5.

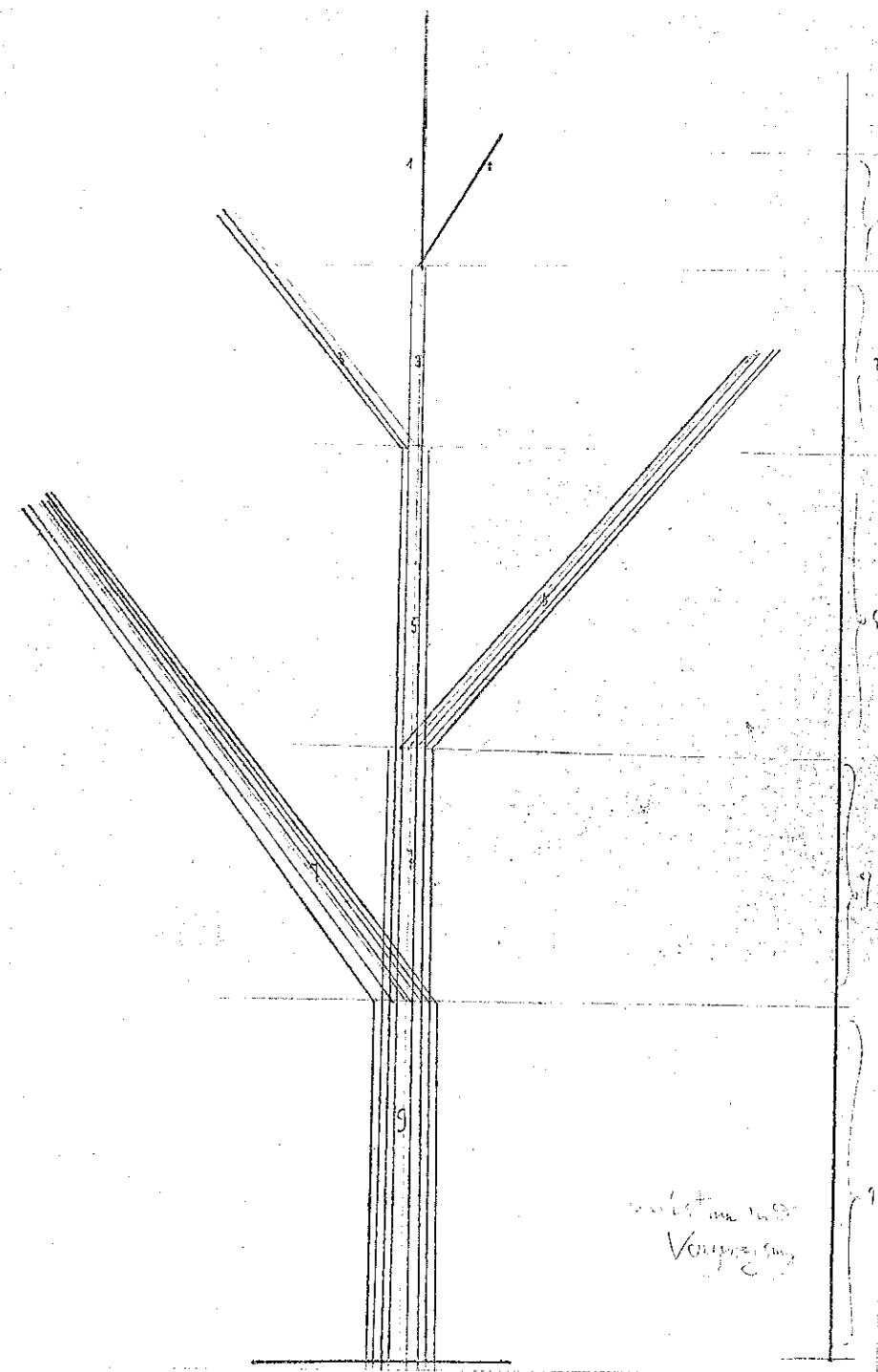


The leaf organ's stem connection with branch and tree as a whole never permits complete co-ordination. Even though the side veins may equal the central vein in size, symmetry is always preserved. In other words, the supremacy of the centre is preserved. Our concept of the veins as constructive, articulating forces entails thinking of the evolution of a leaf (in the pictorial sense) as an argument¹ between linear force or peculiarity and two-dimensional massiveness or multiplicity. The planar massiveness is the element that to the eye no longer appears linear, but is distinguished as a separate element by its tangle of lines. As against linear definition, this element may create an impression of softness.

This line system reaches into the other element, finely forked or sievelike, and enough of it sticks. The planar form that arises is then independent of the inreaching linear radiation. And where linear power ends, there arises contour, the limit of planar form.

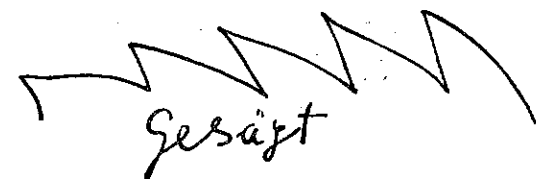


1932/k 8: *Lone fir tree*.
Oil on cardboard on plywood. 53 x 51.



Growth and ramification. 17/120.

Saw-toothed
Serrate
Scalloped
Dentate
Sinuate
Fringed
Fretted
9/12 b+c



gesägt



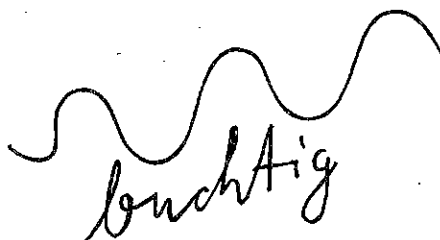
gezahnt



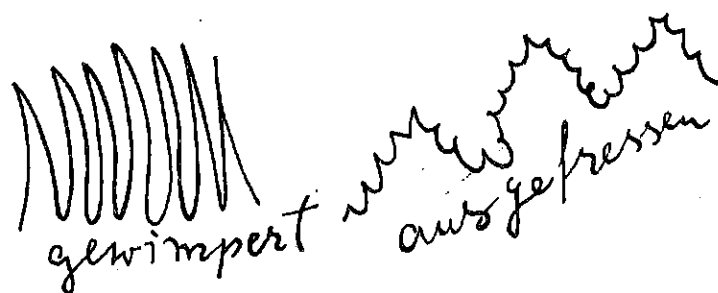
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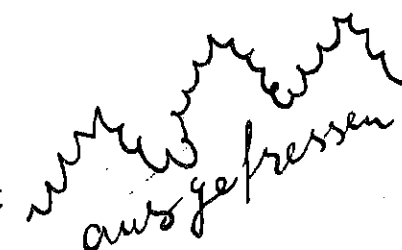
ausgeschweift



buchtig



gewimpert



ausgefressen

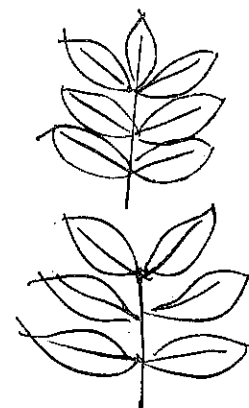
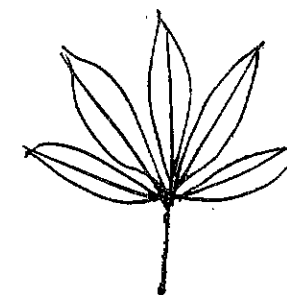
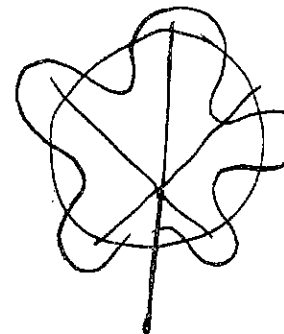
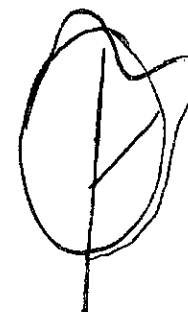
Once traced, this limit figures also as a line, but it takes on a new character with the radiant energy of the interior line formations as its element. It is not active, it does nothing. It is passive, it is tolerated.

As a tolerated form, however, it provides reflexes from the aggressive linear forms. As the spokes poke out more sharply, in the maple or plane tree, the angles of the limiting line grow more acute. When this display of energy takes place in more rounded fashion, the contours tend to be quieter [1].

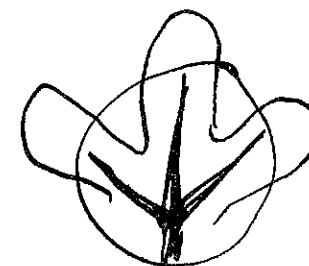
1



3



2



One may envisage this borderline as counteractive (elastic), for when it is everted particularly sharply, it reverts with the same sharpness. In the special case of the reversions going back to the very point of divergence, we get the composite leaf [2].

Thus we may distinguish an archetype (oval), a transitional form and a composite form [3].

Progression within a quadripartite circle.
17/92.

from 24 to 2
from 1 to 4
from 2 to 6
from 3 to 8
from 4 to 10
from 5 to 12
from 6 to 14
from 7 to 16
from 8 to 18
from 9 to 20
from 10 to 22
(from 11 to 24)

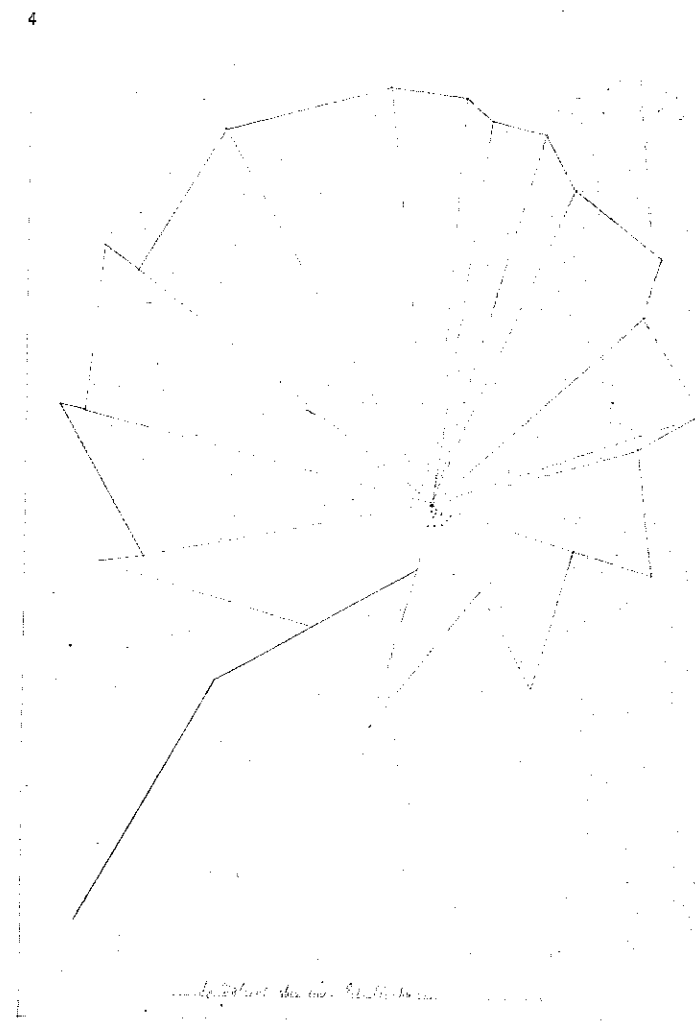
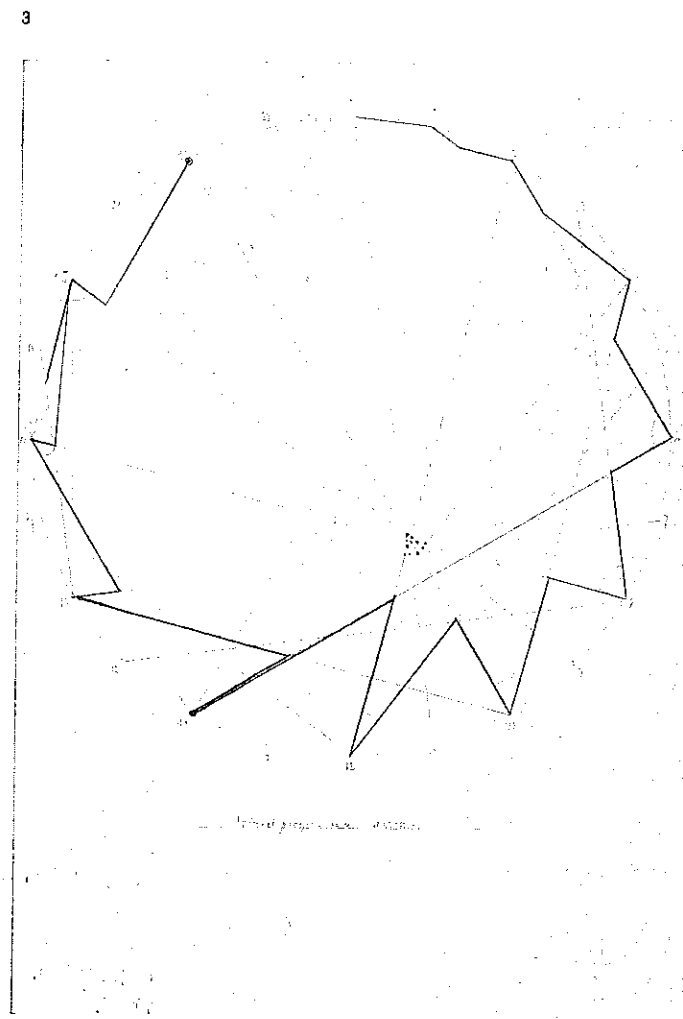
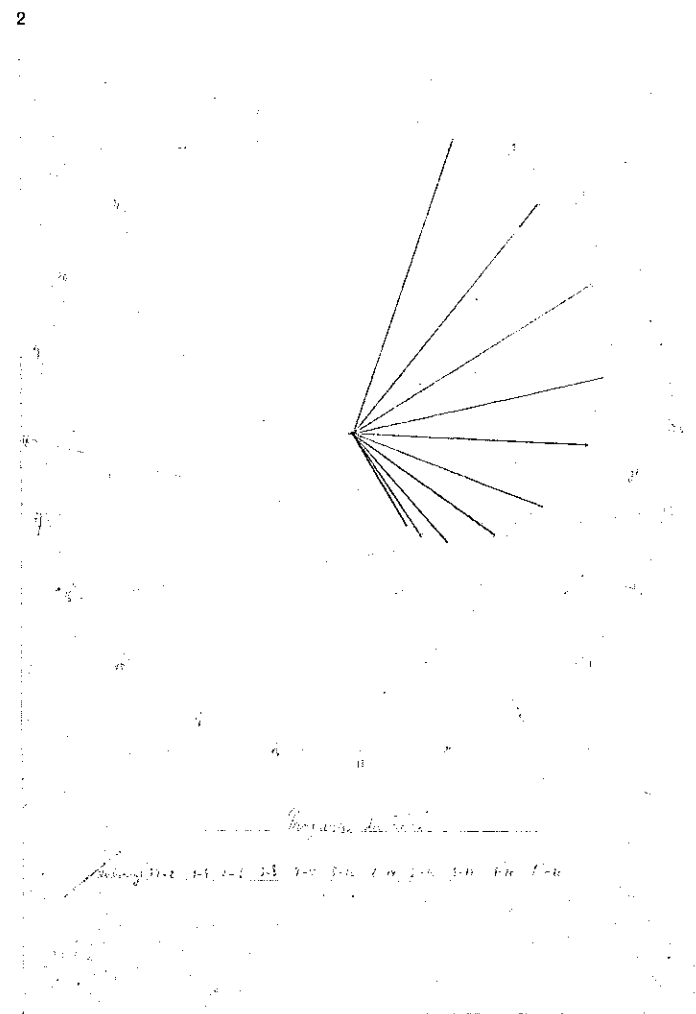
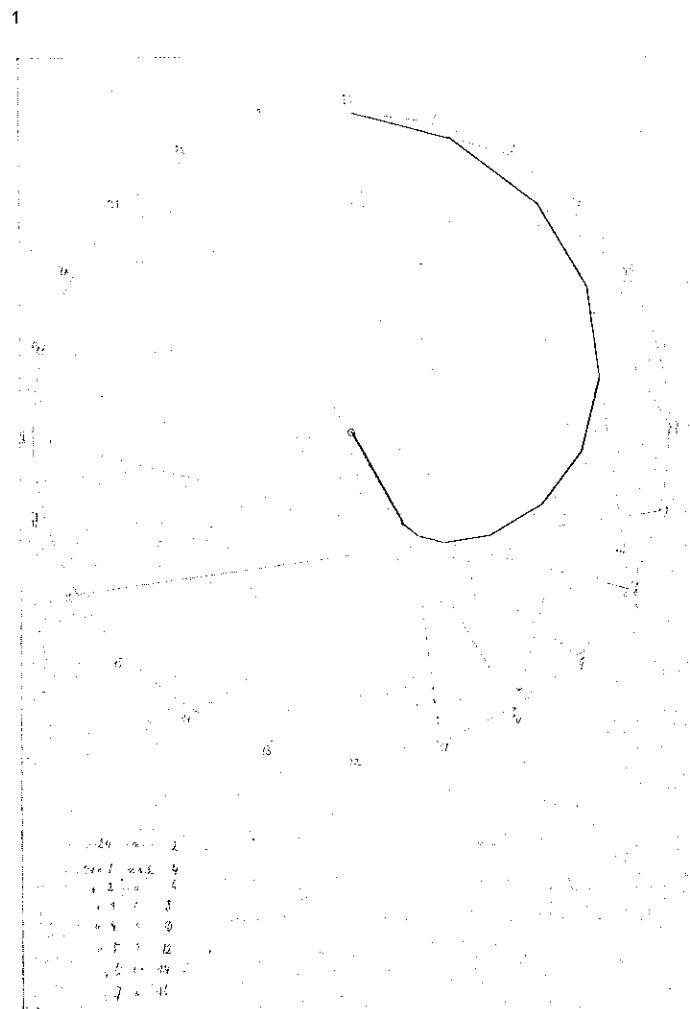
Progression of the radii. 17/93

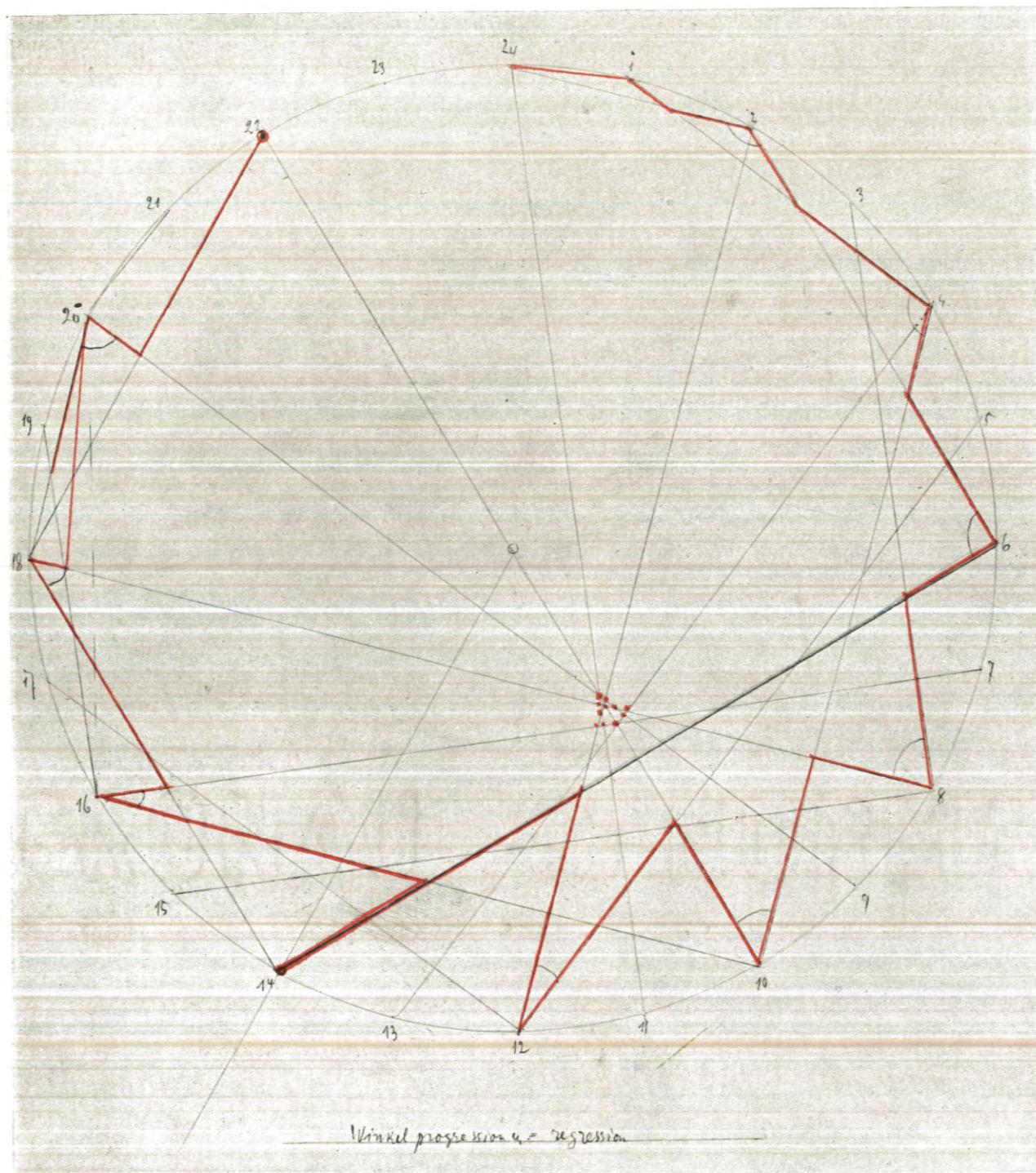
Connection 24-2
1-4
2-6
3-8
4-10
5-12
6-14
7-16
8-18
9-20
10-12

Angle progression and angle regression. 17/94.

The truth about palm-leaf fans. 17/95.

This sequence of constructive examples 17/92-95 is
from the section 'Progressions within a circle
(spirals)' 17/83-90.

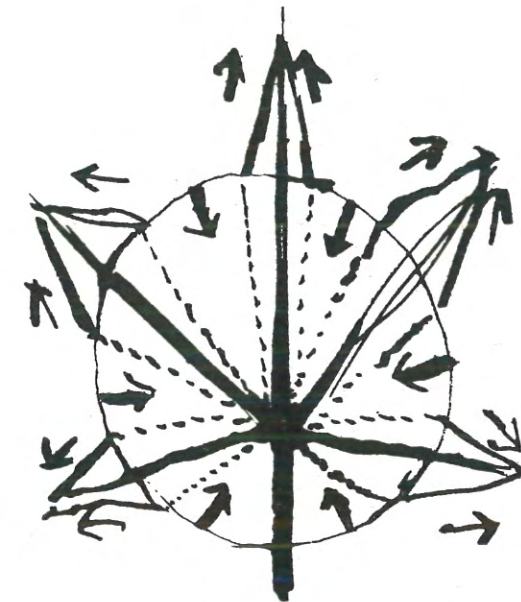


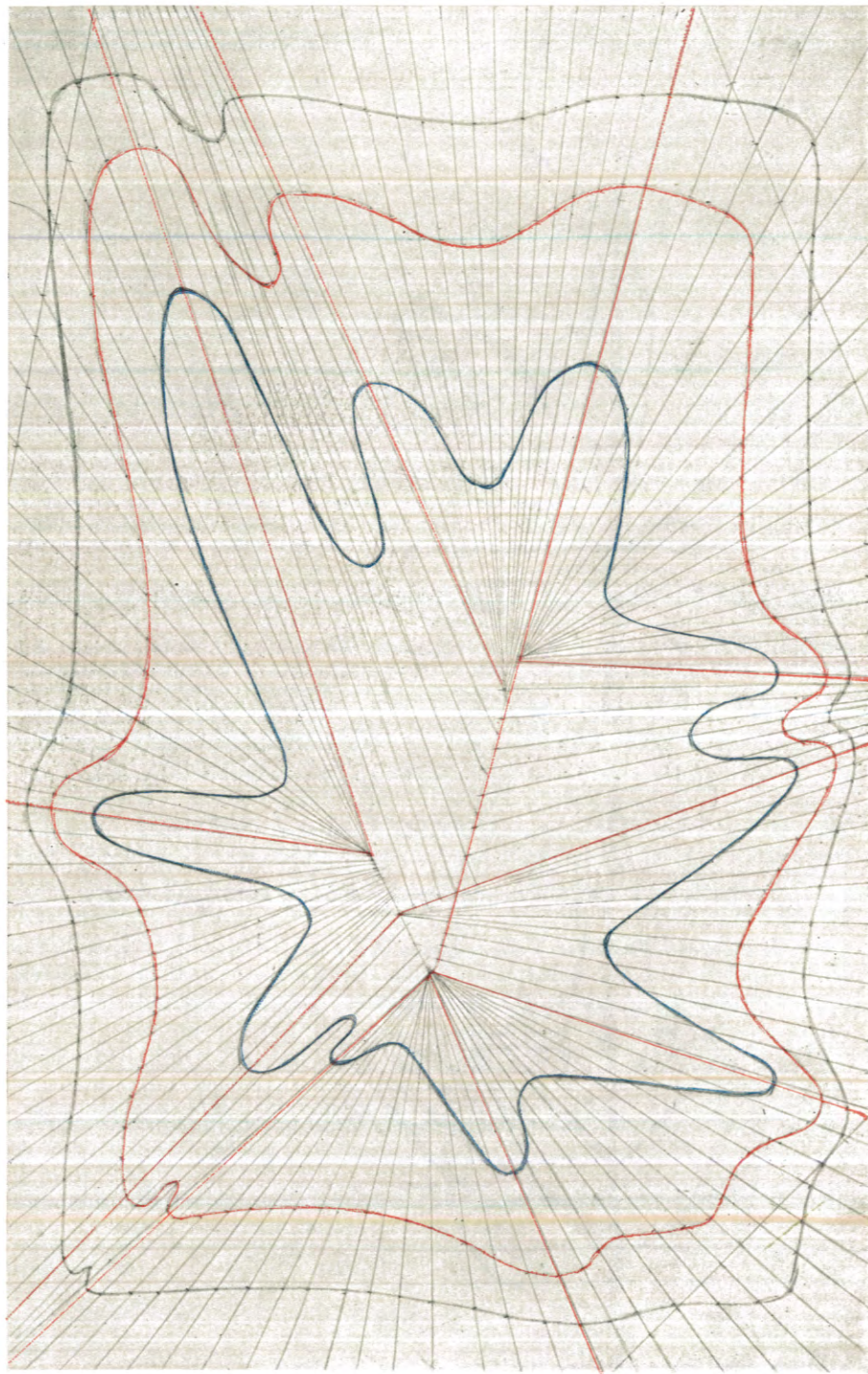


Angle
progression
and
angle
regression.
17/94.

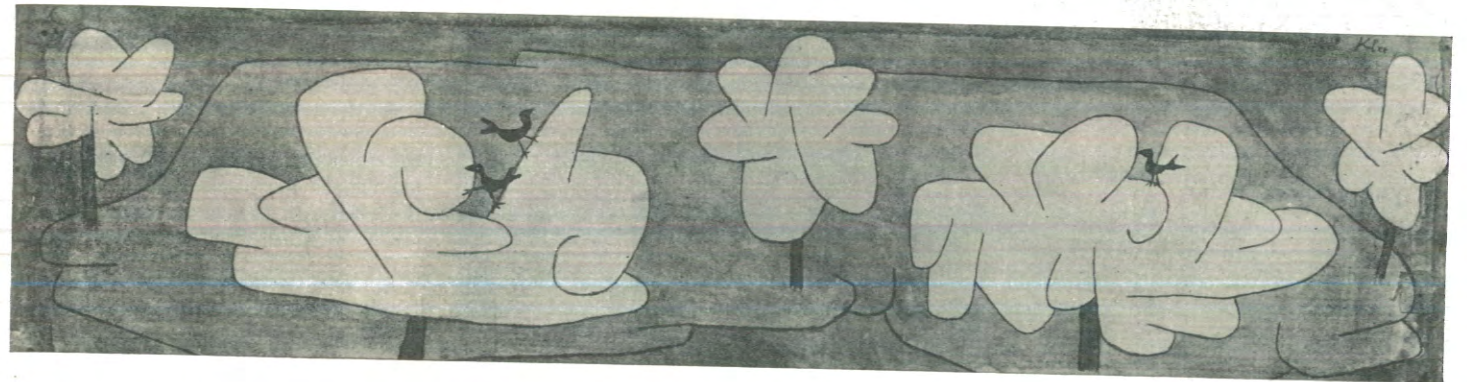
Tear to the base of the radii

All three radii push the given area measurements beyond the normal limits, and in consequence the material between the radii is no longer sufficient and the borderline becomes deeply scalloped. With particularly strong radiant energy, tears may reach all the way back to the base of the radii.





Figuration example 51/7 for the exercise set on Tuesday, 30 October 1923: 'Imaginary leaves on the basis of the foregoing insight into basic rules.' A free geometric-aesthetic effort. In place of a single basis for the radii, there are several.



1939/Estate: *Birds in a water park*. Watercolour on muslin on wood. 16.5 x 65.

Tuesday, 30 October 1923

Exercise:
Imaginary leaves on the basis of the foregoing basic rules.



1938/v 1: *Awakening things*.
Oil and watercolour on plaster-grounded jute.
37.5 × 26.1.

(Published by Nello Ponente/Skira without
corresponding œuvre catalogue number under the
title 'Spring's awakening'.)

1938/M 6: *Locks*.
Zulu crayon. 9.1 × 38.7.

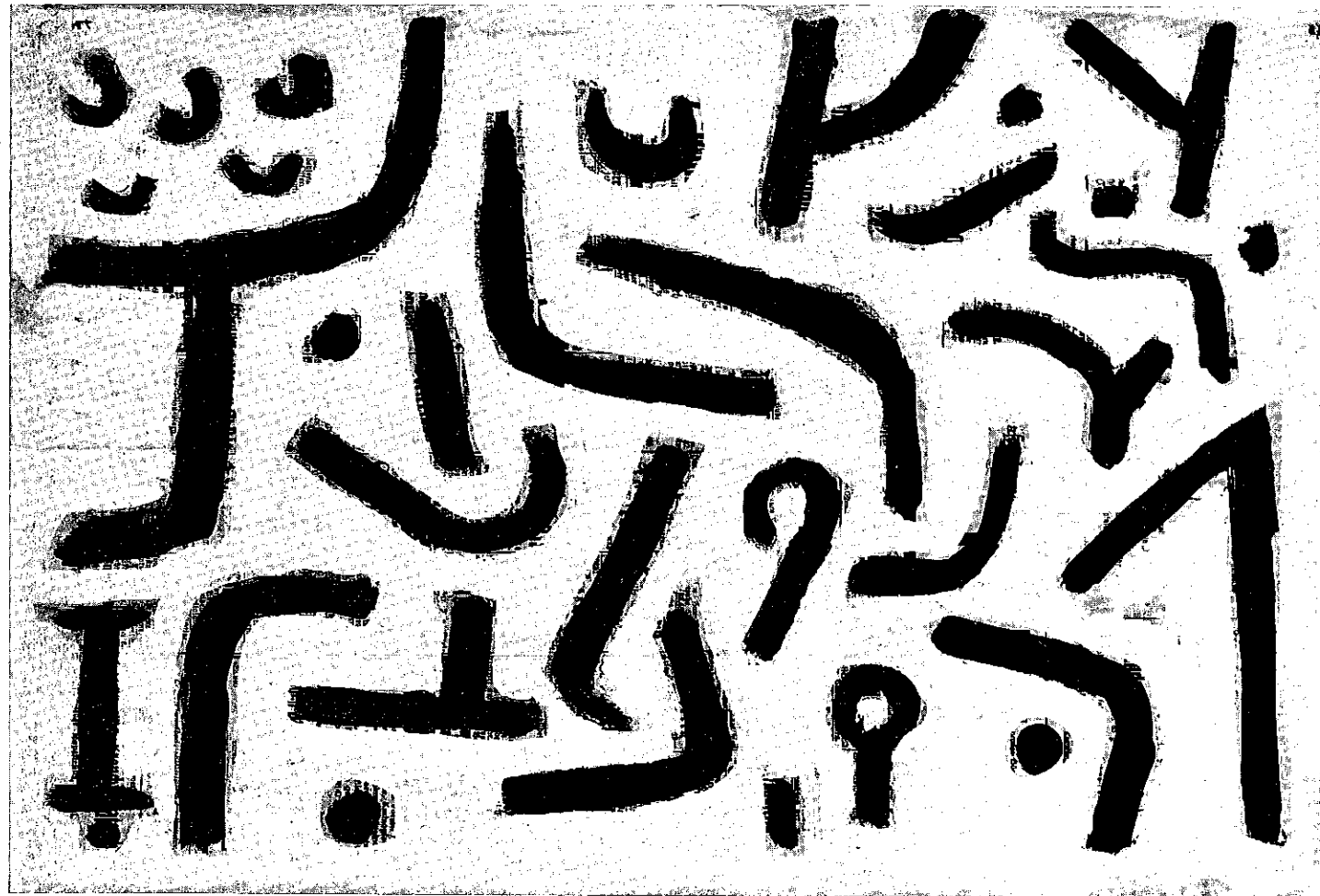
The energy centre
The irritated point as latent energy
Motivation for form-creation and articulation
Inner necessity as the basis for form-creation
Structural and articulation elements

Monday, 5 November 1923



So far we have dealt only with the primitive energies of form creation. These are formational and at once articulating.

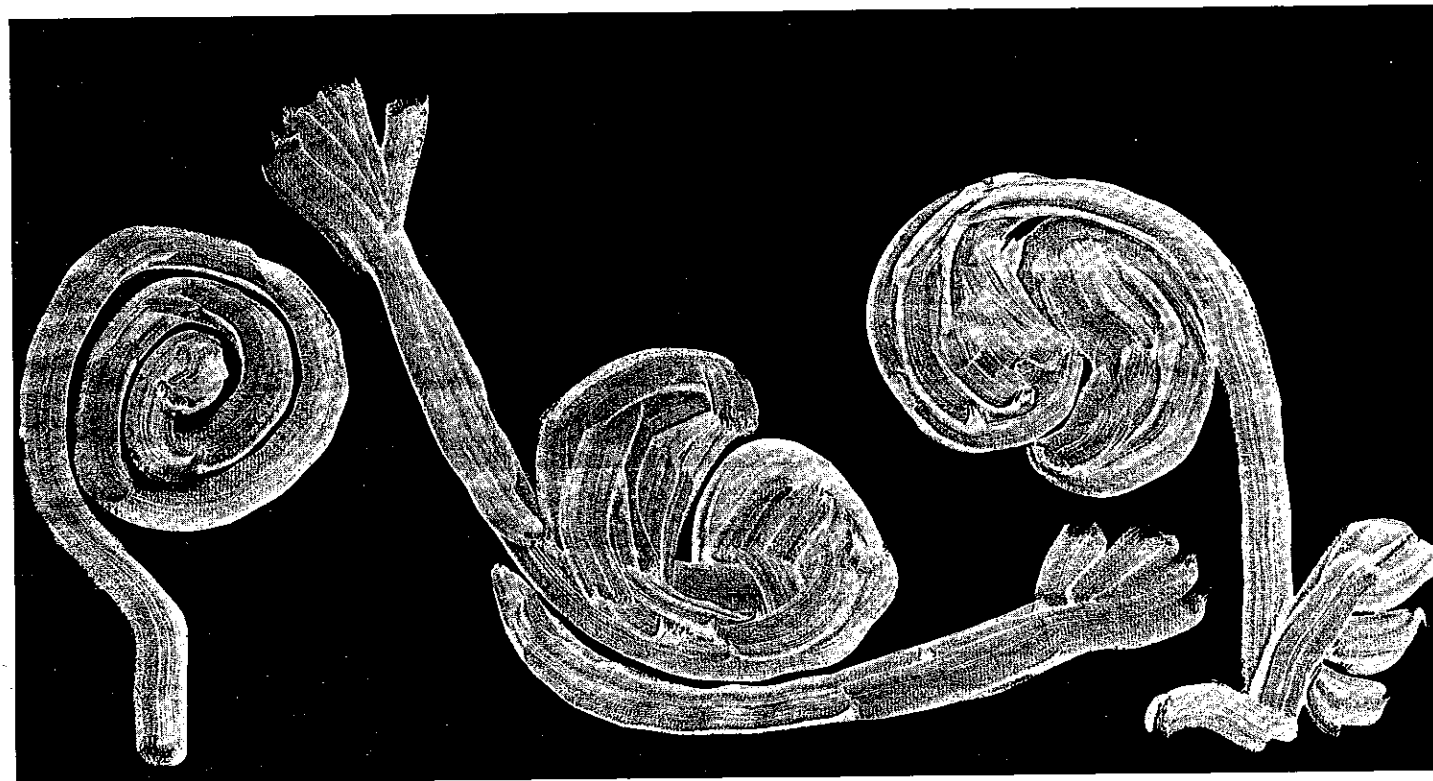
At the primary level, they were highly economical actions, initial movements communicating themselves to the hand. Their primitive character also arises from their close propinquity to the original formal idea. In this connection, I should like to cite the example of a seed. Despite its primitive smallness, a seed is an energy centre charged to the highest degree. It comprises ineluctable impulses that will give rise to entirely different and highly characteristic forms. One seed will grow into a violet, another into a sunflower – not in the least fortuitously, but by its very nature – the one always a violet, the other always a sunflower. (So reliable is this that seeds may be sorted, packed, labelled and marketed.) Each seed is the spin-off of a certain species and a talisman for the regeneration of that species.



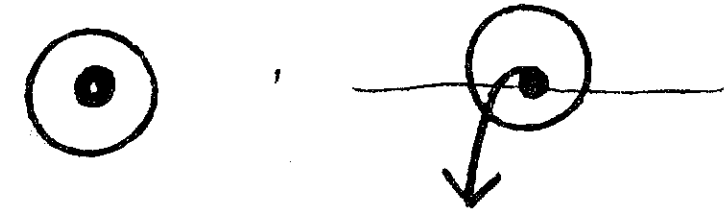
1938/78: *Growth stirs.*
Coloured paste on newspaper. 33 x 48.5.



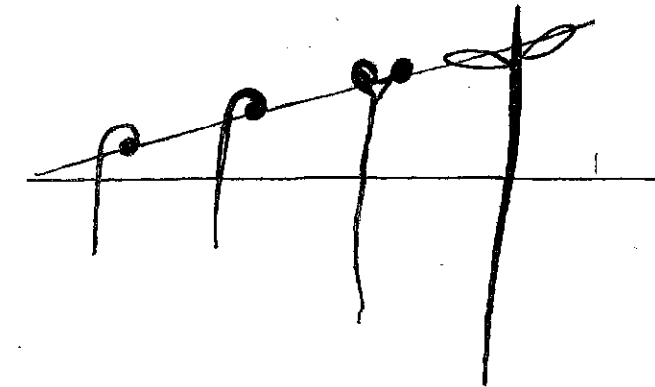
1939/CC 14: *Deep in the woods.*
Watercolour and egg emulsion on oil-grounded
canvas. 50 x 43.
Free leaf and fruit motifs, dynamically accented in
keeping with the style of Klee's late work.



A certain impetus from without, the relation to earth and atmosphere, begets the capacity to grow. The slumbering tendency towards form and articulation awakens in predetermined precision, determined with reference to the underlying idea, to the logos, or, as the translation runs: the word, which was in the beginning. The word as a premise, as the idea required for the genesis of a work. In abstract terms, what we have here is the irritated point as latent energy.

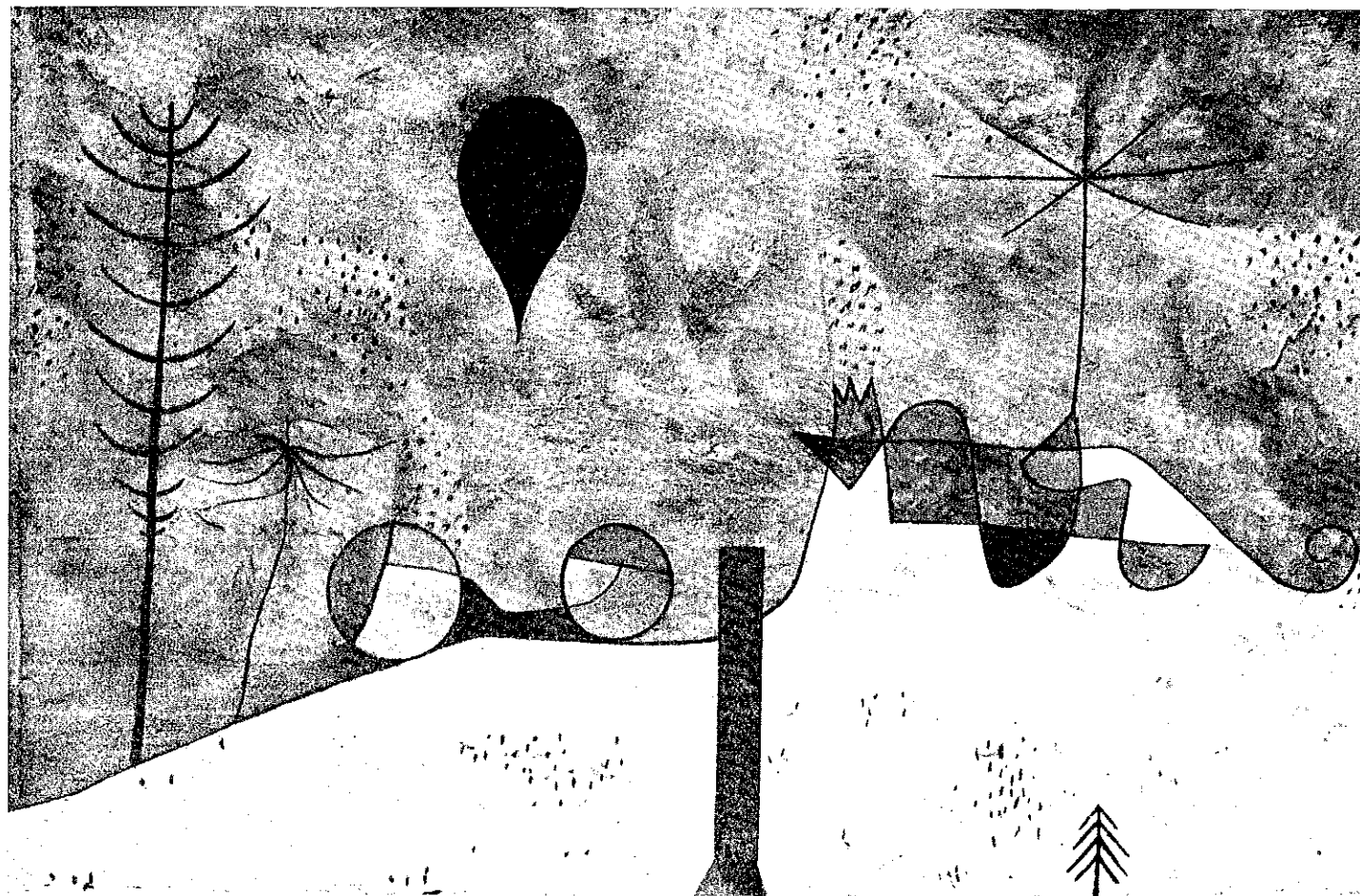


At the slightest impetus, the point is about to emerge from a state in which its mobility was concealed, to move onwards, to take on one or more directions. It is about to become linear.



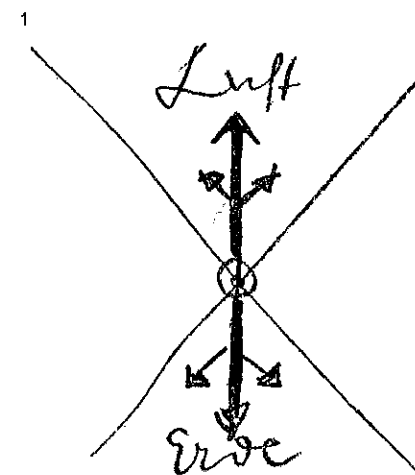
In concrete pictorial terms: The seed strikes root, initially the line is directed earthwards, though not to dwell there, only to draw energy thence for reaching up into the air. The next effect of contact with the soil is that the seed rises, and this is often followed by a kind of split (dicotyledons¹). This division becomes the beginning of further upward motion. The spirit of this form-creation is linear.

¹ Dicotyledons: plants with two seed lobes, a major division of the angiosperms. In the germination phase these plants have two or more seed leaves.



1930/d 8: Winter scene. Gouache on cardboard.

To [2]: Earth, water, air,
From 'Towards a theory of form production'.
Cf. Volume 1, p.315.
E: Earth
W: Water
L: Air

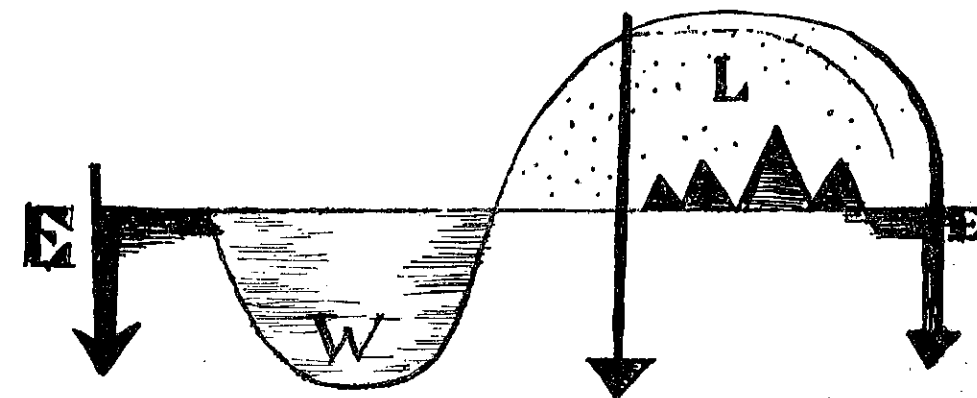


3

In order to spread and gain power over large areas of space, the linear unit branches.
In order to irrigate, the stream divides. The dynamic force is space hunger – space hunger as juice hunger underneath the ground, space hunger as air and light hunger in the atmosphere [1].

Extensions in the air space and within the soil are interdependent, just as in developed organisms the functions of nutrition and respiration are interdependent. A broader nutritional base may give rise to large respiratory organs, while greater breathing-space may enlarge the nutritional organs (mutuality, reciprocity) [2].

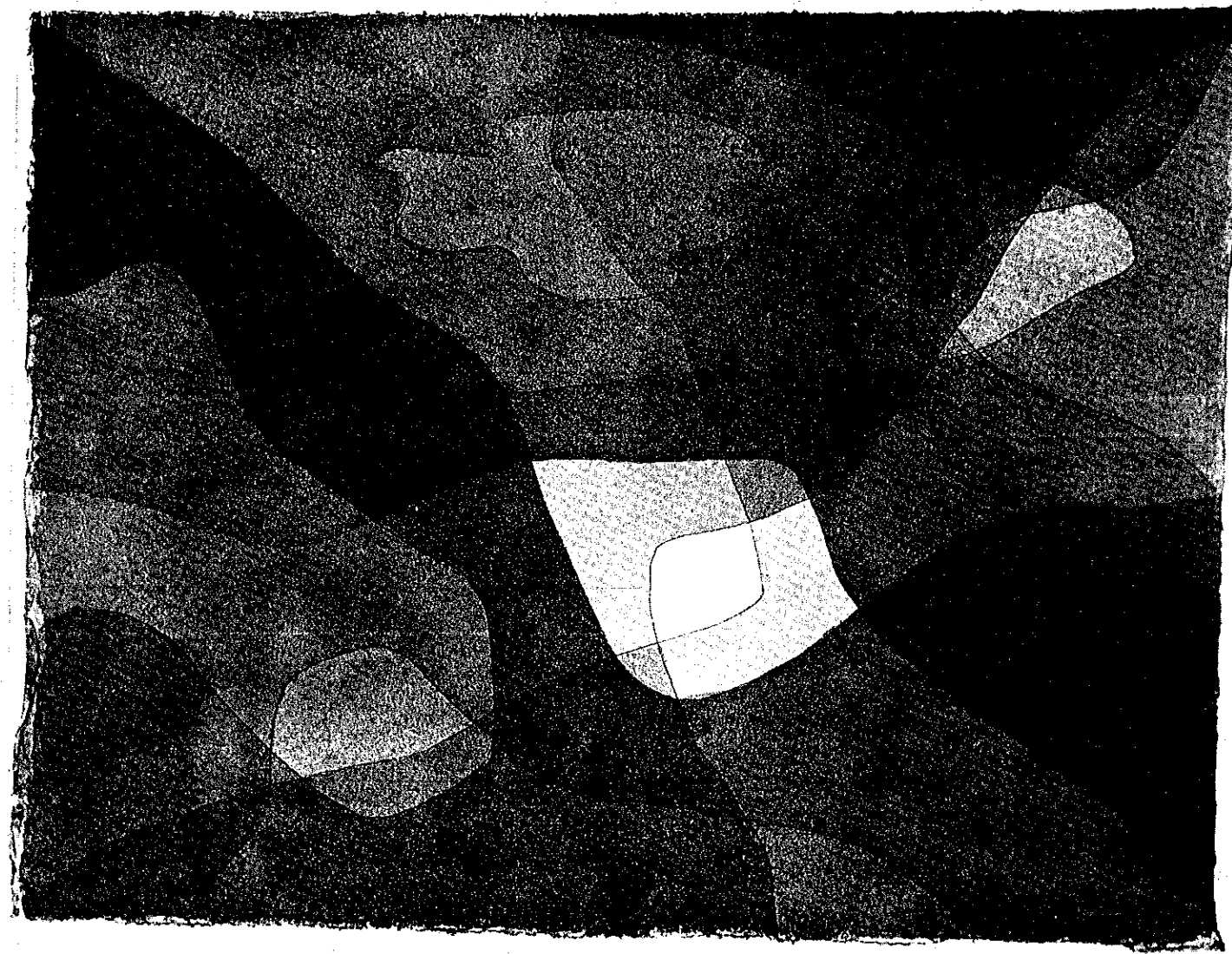
2



Competition with other creatures, or the struggle for existence, to use a more dramatic term, provides the impulse for the enhancement of energy production. As far as light requirements are concerned, altitude plays a certain role [3].

The point of origin between soil and atmosphere stretches out, and the generalised plant image becomes tree, root, trunk, crown.

The trunk is the medium for the rising of the sap from the soil to the lofty crown.

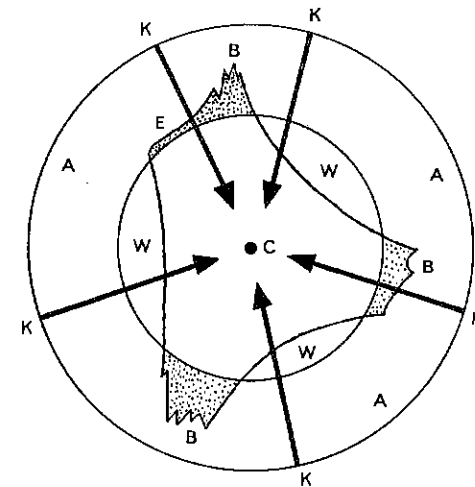
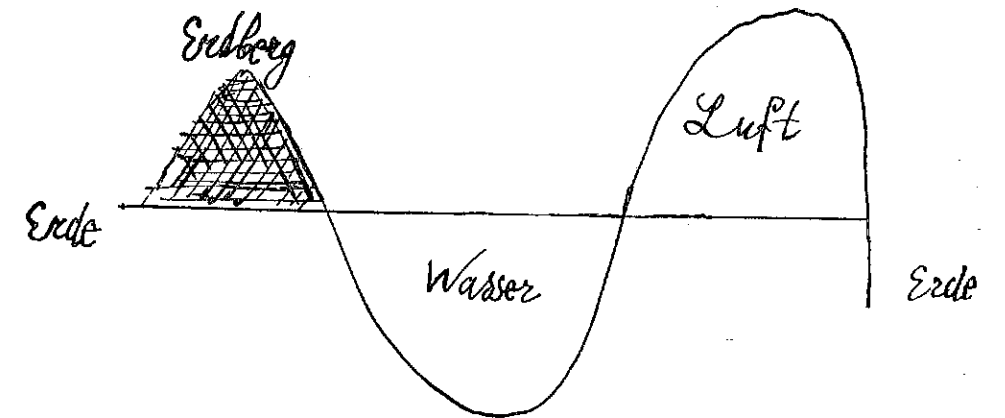


1980/x 6: *Hill and air, synthesis.*
Watercolour, 25.5 x 31.

Earth,
water,
air
seen in cross-section.

Earth,
water,
atmosphere
seen in elevation.
Cf. Volume 1, pp.313-315

- C Centre of the earth
- W Water
- E Level ground
- B Hills
- A Atmosphere
- K Gravitational forces





1932/113: Young tree
(*Chloranthemum*).
Watercolour on chalk-grounded
paper. 48.4 x 36.7.

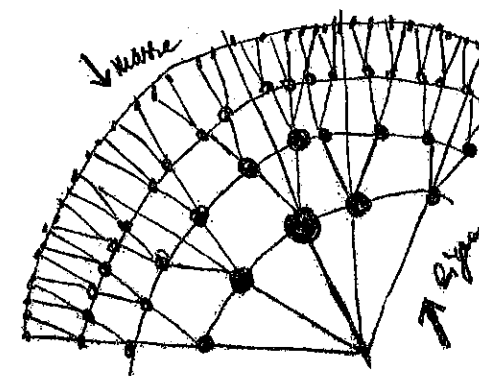
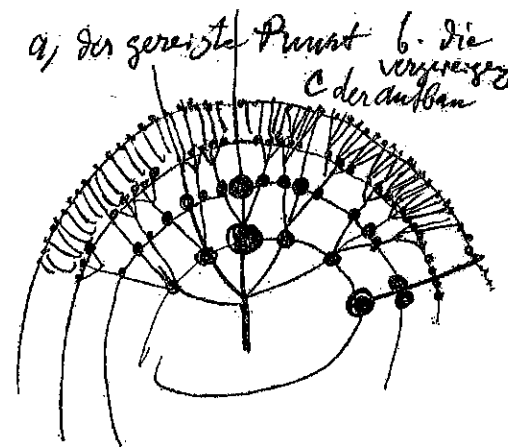
The linear forces gather within it to form a powerful stream, and they radiate outwards, in order to pervade the air space at free height. Henceforward articulation naturally becomes more and more ramified and open, to make the best of air and light. Leaves become flat lobes, the whole thing begins to resemble a lung or gills, porous, subdivided, for a single purpose.

Let this entire organism now become an example to us – a structure functioning from within to without or *vice versa*.

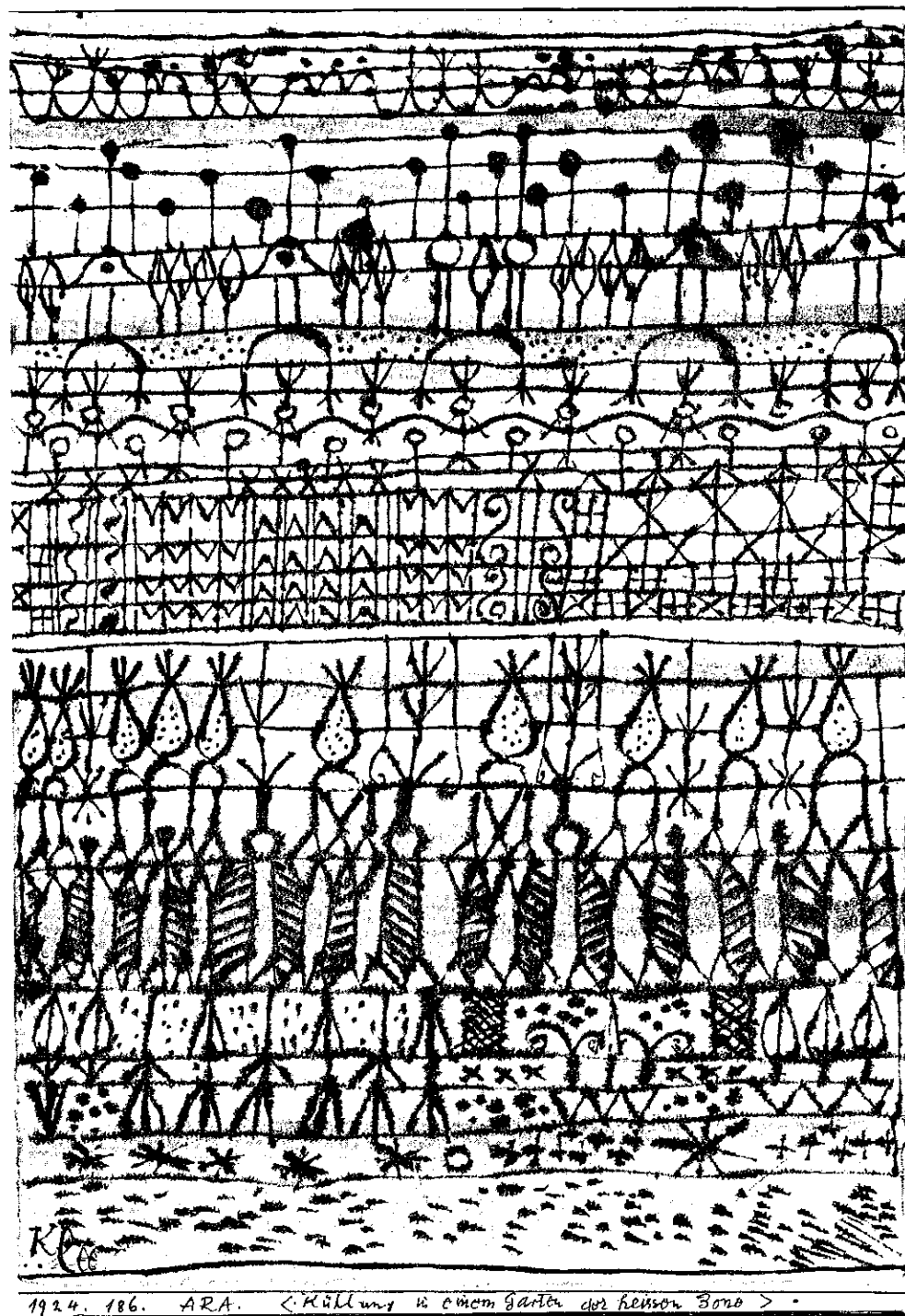
Let us learn: The whole form results from a single base, the base of inner necessity. Need is at the bottom.

There is no random toying with results. The active path towards form and inner structure is ineluctable. Considering the articulation on its own and recalling the leaf, we can observe successive changes in the character of articulation, as we move from the main limb to the side limbs. Beginning with the element of singularity we arrive at the character of plurality.

In terms of form production, the line between linear and two-dimensional elements must lie somewhere. In terms of form articulation the line between singular articulation and mass articulation must lie somewhere.



- a The irritated point
- b The ramification
- c The structure



1924/186: ARA.
Cool breezes in a garden in the torrid zone.
Pen-and-ink drawing with watercolour, 29 x 21.

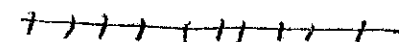
It is less important to localise this precisely than to regard the two elements as being in contrast, e.g. the singular as moving forwards, the masslike as moving backwards.



The disparity between the two then leaps to the eye. The mass element I should like to call structural character. The articulated aspect of mass should be envisaged as the massive repetition of values that are of a similar order of smallness.

In linear aspect thus

linear gesehen so



or thus

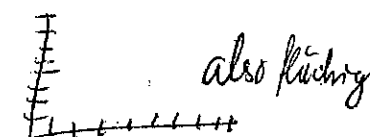
oder so



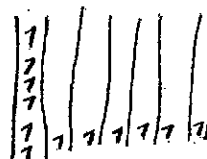
or in two directions at right angles

oder nach zwei Richtungen gekreuzt so

in other words, planar

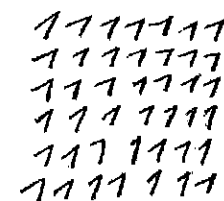


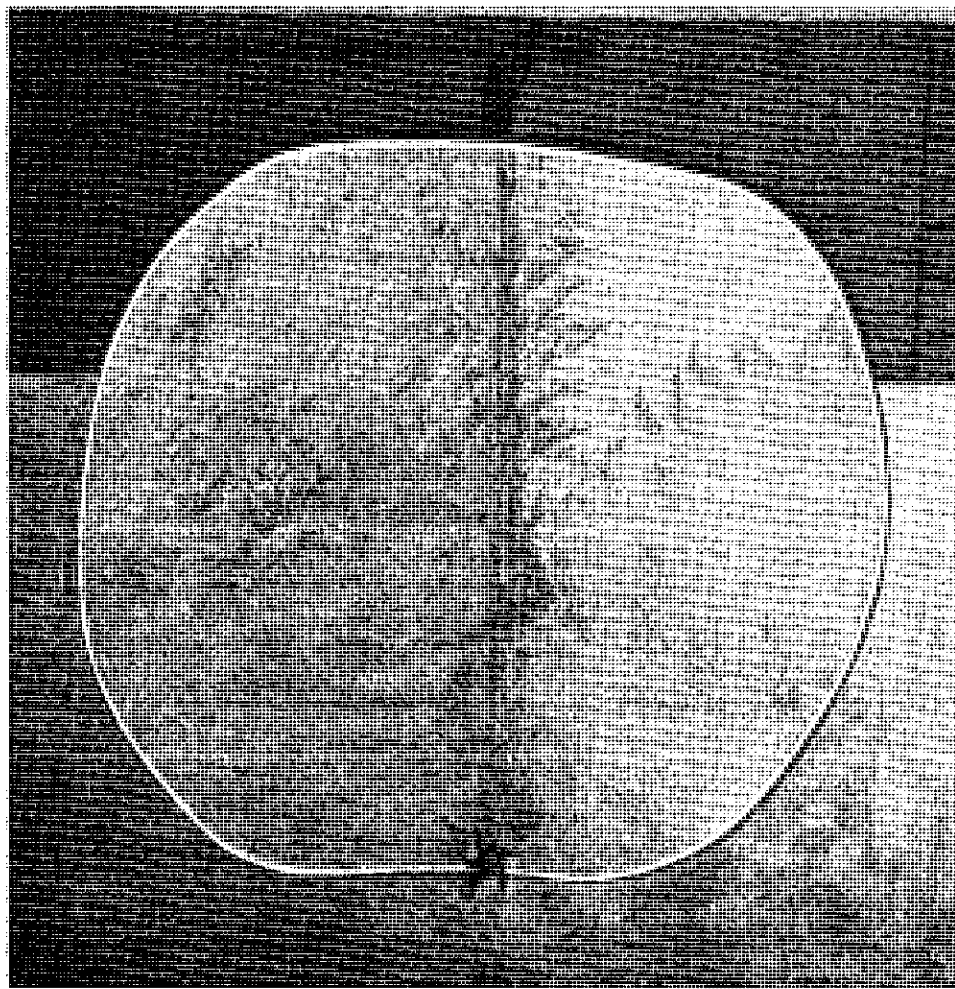
also flächig



both dimensions combined and expressed in figures

beide Dimensionen vereint und in Zahlen ausgedrückt





1934/U 15: *Prize-winning apple*.
Oil on muslin on plywood, 55 x 55.

'Along the whole line of development that leads to the fruit, longitudinal cuts constitute typically static images and cross cuts typically dynamic; but once we get to the fruit itself, the static aspect vanishes. All cuts become dynamic.'

- [1] *Fruit, cut into*, 49/10.
[2] Cross-sectional, inside and out at the same time, 49/5.
[3] *Pupated*, 49/12.
Drawings from *Frei Geometrisch-Ästhetisches*, 49/1-17.

Tuesday, 6 November 1923

Drawing apples.

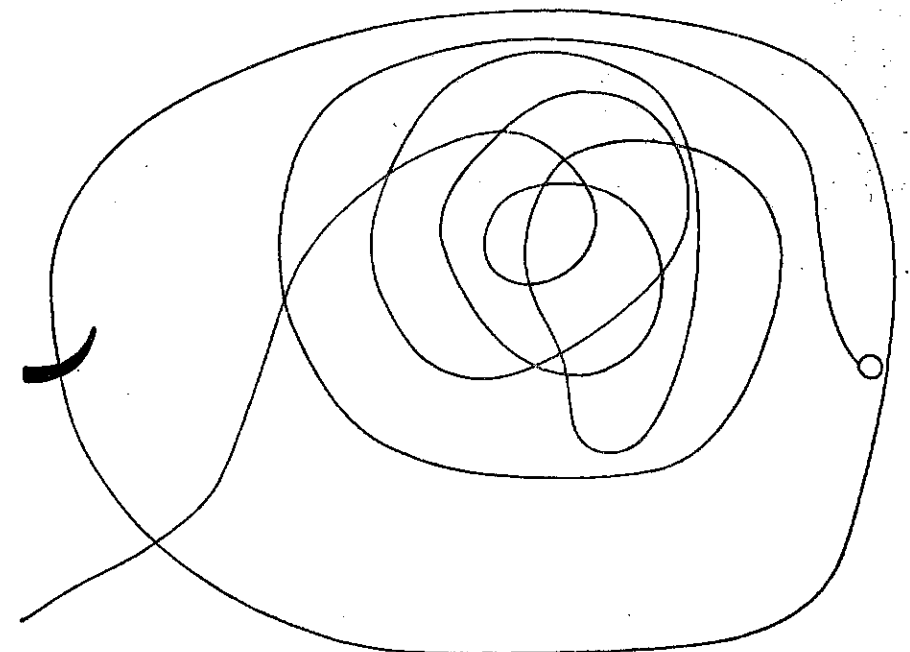
a longitudinal section

b cross-section

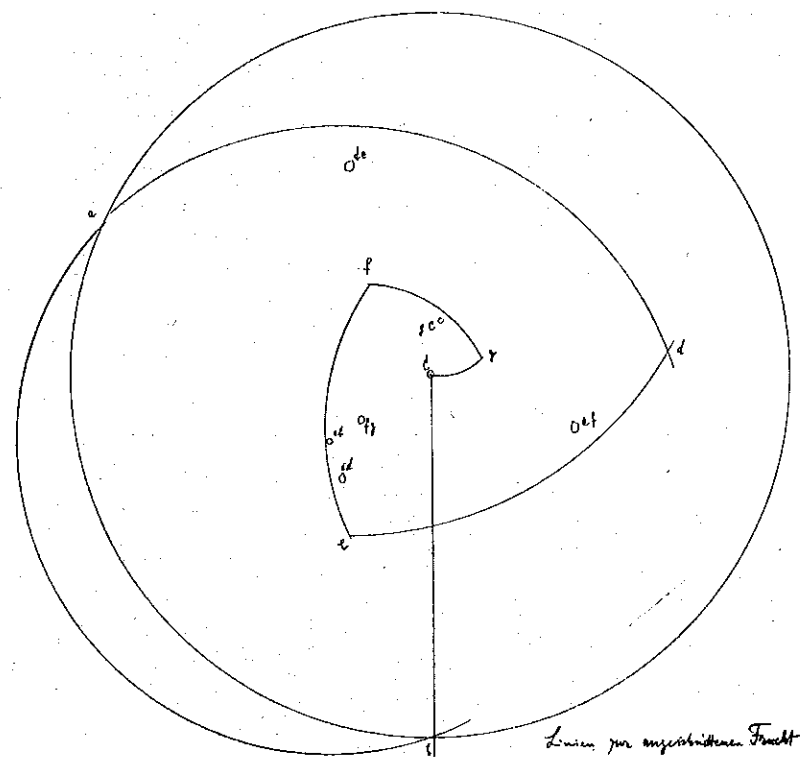
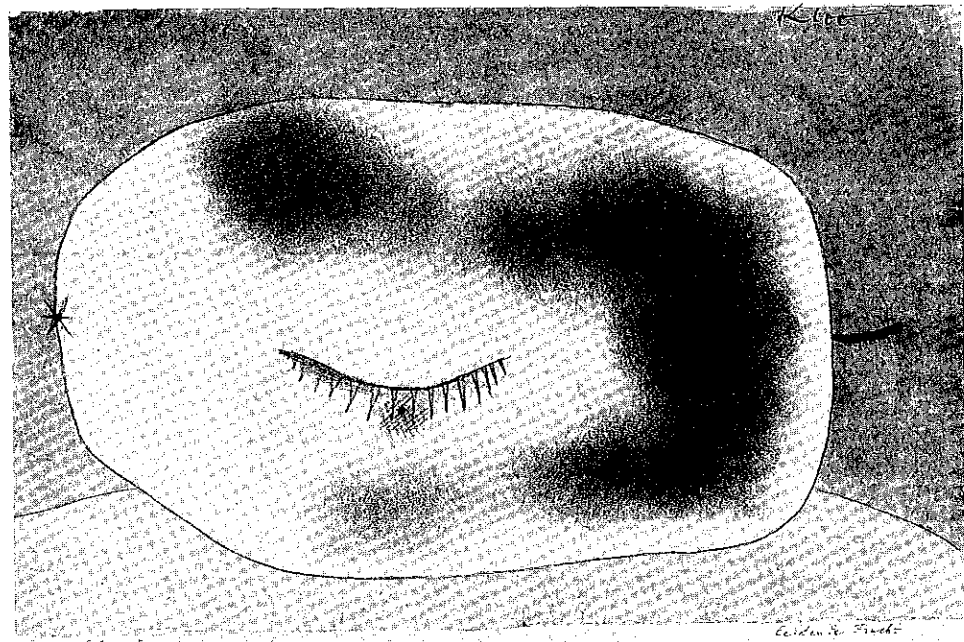
c spatial-three-dimensional drawing.

The apple [from blossom to fruit ('capsule'!)].

Along the whole line of development that leads to the fruit, longitudinal cuts constitute typically static images and cross cuts typically dynamic; but once we get to the fruit itself, the static aspect vanishes. All cuts become dynamic. 45/66.

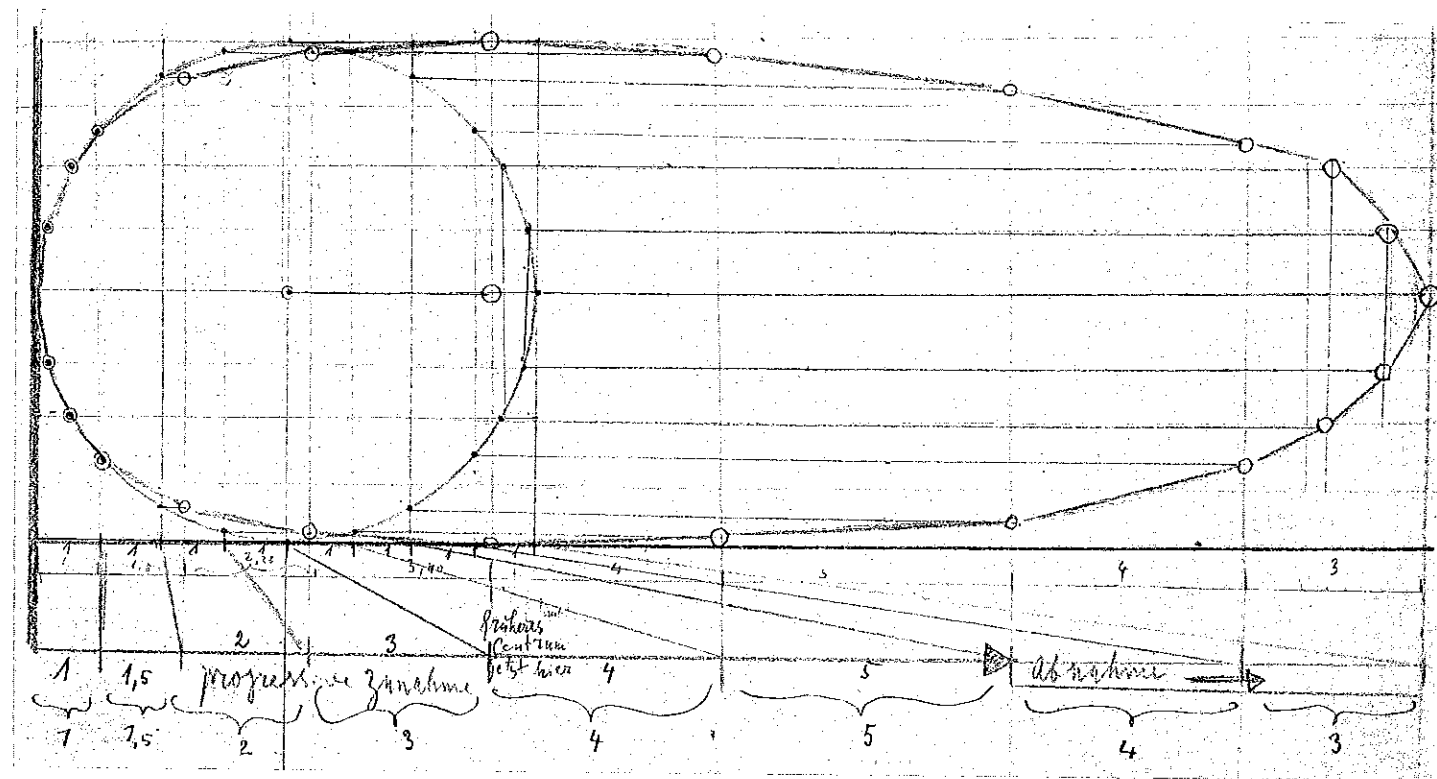


- [4] Spatial-three-dimensional drawing.
Excerpted in line from the painting 1932/y 4: *Fruit*.
Cf. Volume 1, p.8.

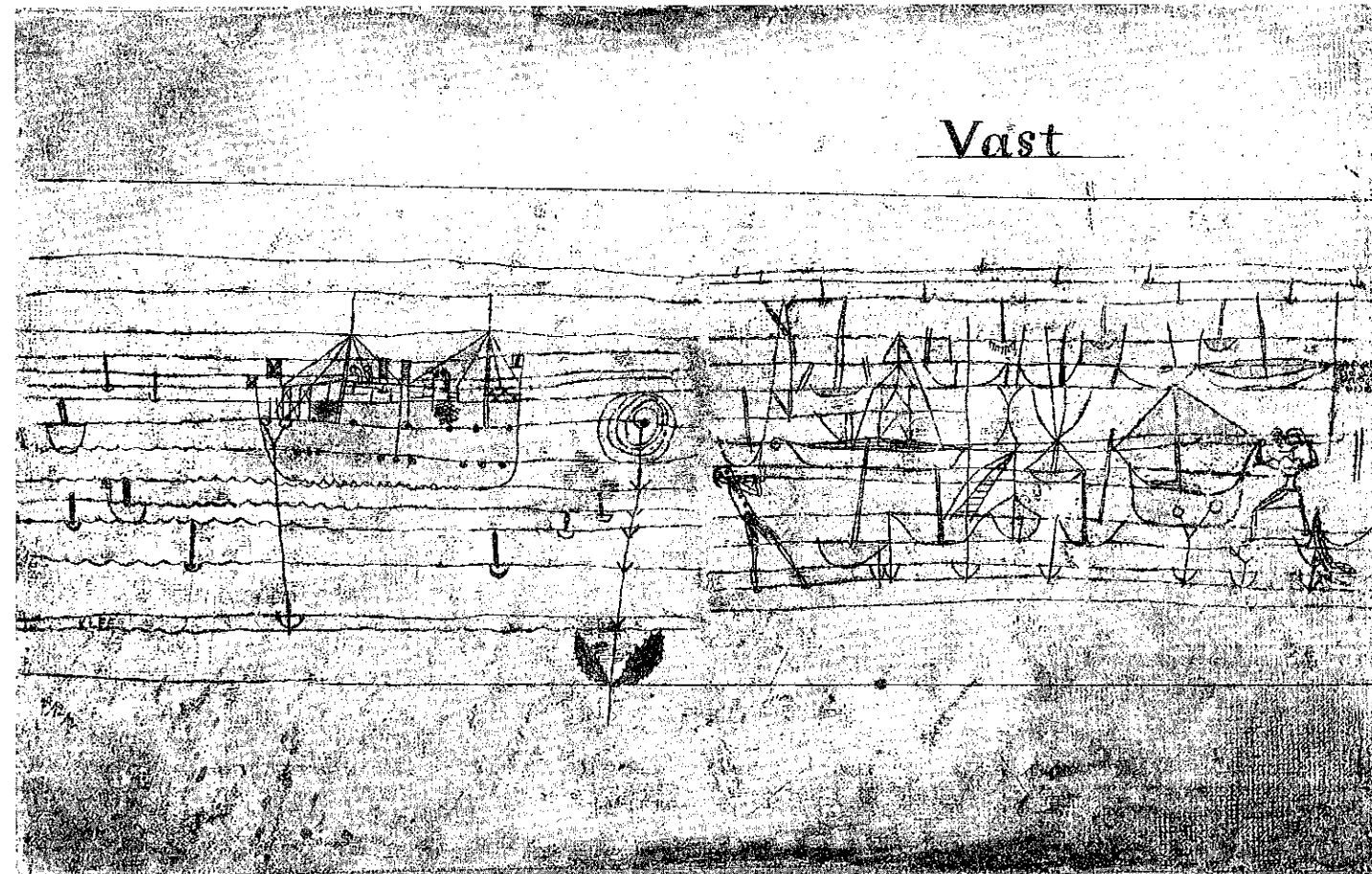


**Cross-section and longitudinal section
of a fruit**

Union of norm and of movement away from the norm
Progressively waxing and waning side movement (with the centre shifted)
Progressive increase: 1 1.5 2 3 4 5 decrease → 4 3
Former centre (between 2 and 3) now here (between 3 and 4). 17/114.



1925/8: *Vast (Rosenhafen)*.
Oil drawing and watercolour on plaster-grounded
gauze on board, 36 x 58.8.



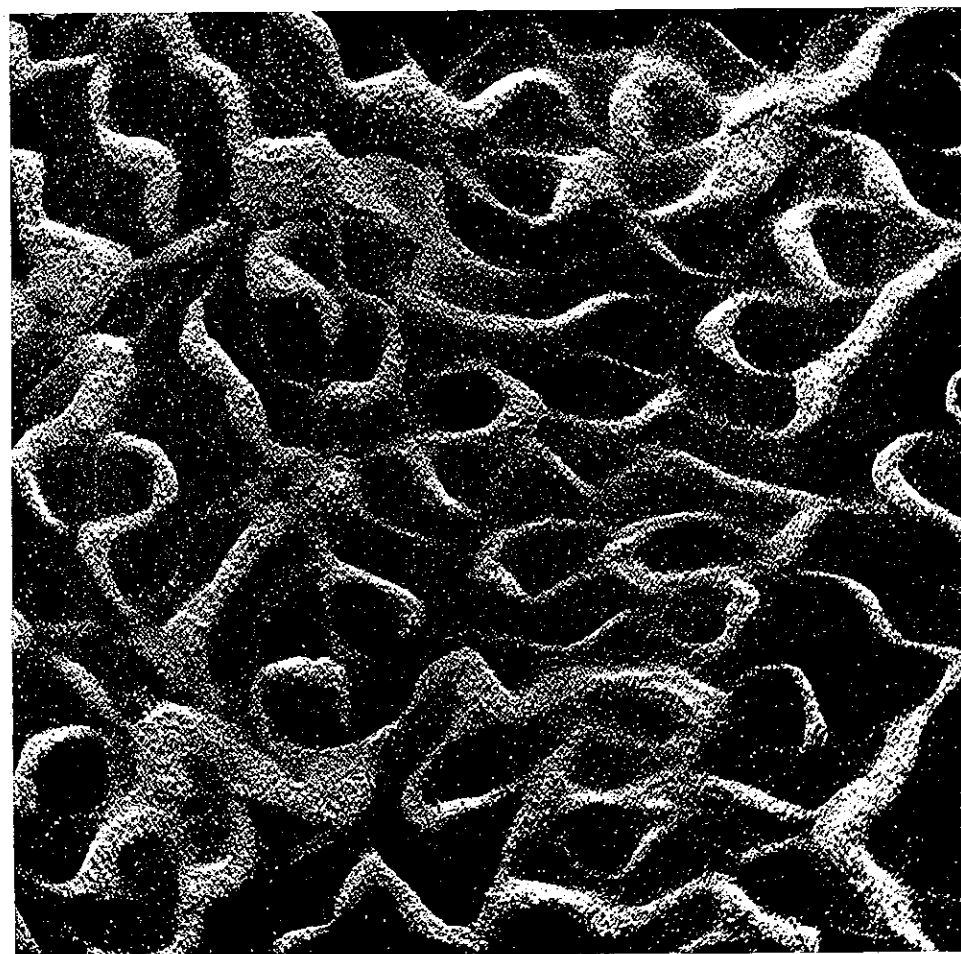
**Structural rhythmic and higher articulation,
linear, planar and three-dimensional
Form-determining activities
Suitability of matter for given purposes and its movement potential
The question of the causal
The act of forming rather than form itself
Ideational originality**

Tuesday, 27 November 1923

What I saw by way of your theoretical exercises in the field of structures was not very rewarding, in terms of spontaneity. A certain trend towards rigidity predominated, often resulting in chillingly symmetrical ornamentation. I think that is a slippery area, and for the time being, should still like to discourage you from entering it; for initially it is hard to retain life in such abstractions. One tends to ignore altogether the bridge that leads from natural and inherently coherent rhythm to its precise representation.

The ultimate flowering of ornament is precisely such an end, arising on the basis of what is supposed to have happened, which one should not tackle directly, in my searching view of form-production. Instead, it is an end one should allow to grow, like the natural process, as the result of form-determining activities. Here too it is the act of forming rather than form itself, form in the process of growth, as genesis, rather than as the ultimate appearance.

Many of you will know the pretty experiment with sound figures. First spread a layer of fine sand on a thin plate of wood or metal. Then draw a violin bow across an edge, making the plate vibrate. This vibratory impulse is the heart of the matter. It causes the sand to arrange itself in a corresponding rhythmical order. First, in other words, the vibratory impulse, the will or need for living action, then the transformation into a material event, and lastly its visible expression in the form of newly rearranged material.



Sand figures do not represent sound figures in the ordinary sense. Rather, the grains of sand are in flowing motion. The excitation is by means of oscillating crystals. (A steel plate 0.5 mm thick, 25 x 33 cm, was used, at an oscillation frequency of 10,700 Hz.)
From Hans Jenny: *Cymatics. The structure and dynamics of waves and vibrations*, p.31.
Cf. note in the appendix.

We are the bow, we represent the expressive impulse, mediated by the substance, with the sand figures as the final formal result. The main context embraces the bow (vibrations) and the physical material. It is as though matter were being fertilised and became invested under this dictate with a kind of life of its own. The sand is the annexe, the outer layer, the secondary stratum.

To revert once more to structures and avoid the lifeless in advance, I should like to choose as the symbol of structure

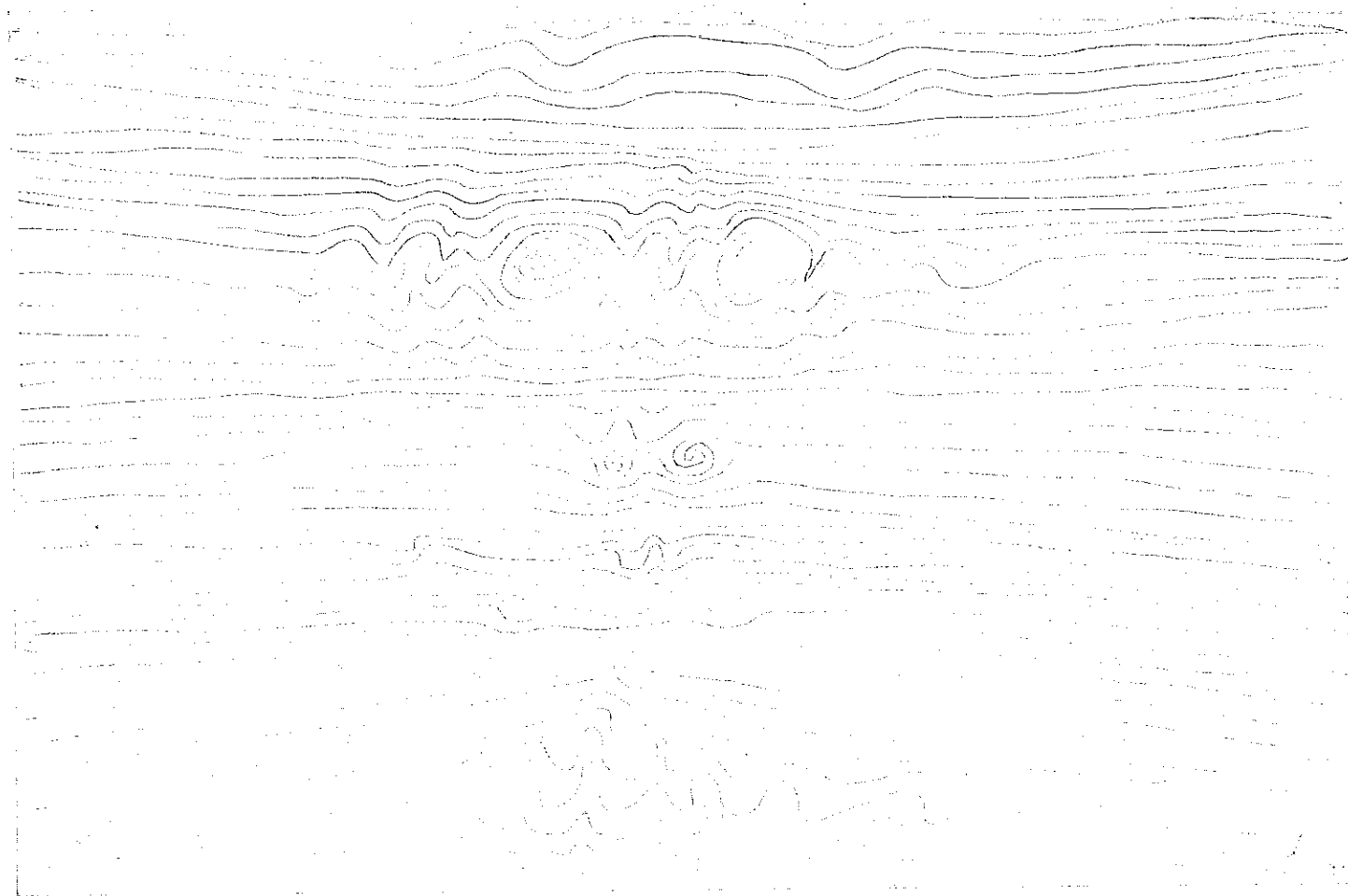
in place of



rather this wavy line.



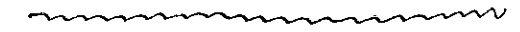
1937/L13: *Coastal formation*.
Mixed media on paper. 12 x 22.5.



1935/3: *Random movement of water.*
Pencil 17.8 x 26.9.

Wave motion arises by the emphasis on small scope versus larger scope (contrast of normal and departure from the normal). The sum total of the lines turns into a surface effect.
Cf. another example: 1929/UE 9: *Movement in locks*, p.49, as well as the form-creative example on p.75, 60/24: Widest contrast span.

To revert once more to structures and even here avoid the lifeless,



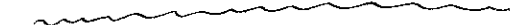
I should therefore like to establish this wave structure as the symbol of minutely divided animation. If matter is to be swept up into it, however, it must be suitable, in which event it will swing into action at full force.

The suitability of matter for a given purpose consists in its particles being amenable to movement. Function resides in movement itself. For us, who build neither clocks nor robots, the material emphasis falls on mobility; but to build tiny shelters for movement, we must in turn proceed from movement itself, from the need for such shelter.

Rigid guideline through matter



Mobile guideline through matter
Movement potential
predicates a certain scope
for the guideline

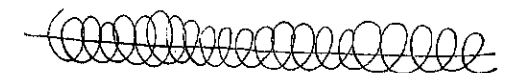


No such scope

Kein Spielraum



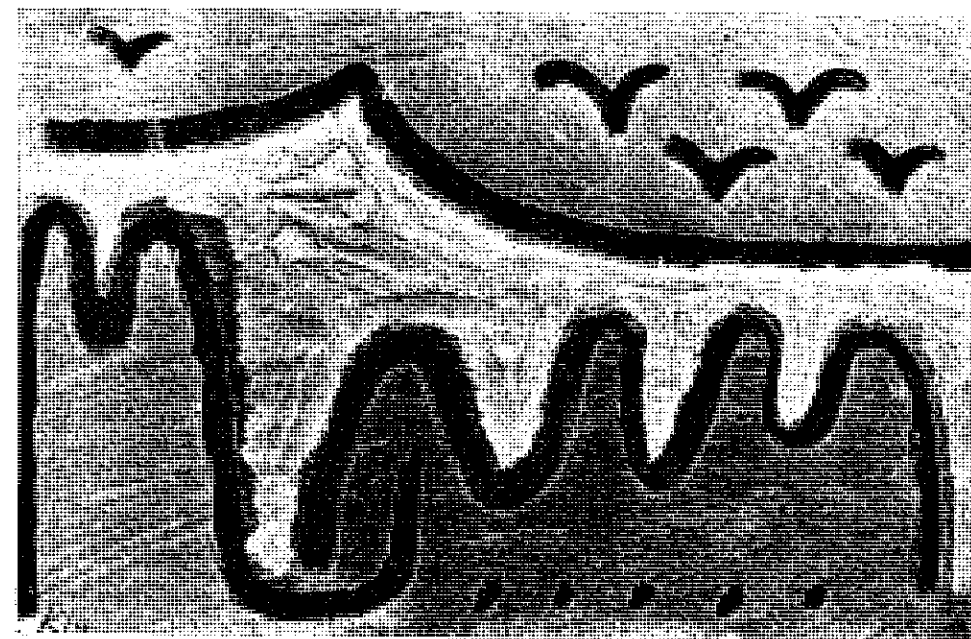
Scope for movement



Spielraum

Well, now, how is matter to be swept up into this first expression of life? The question of the causal arises.

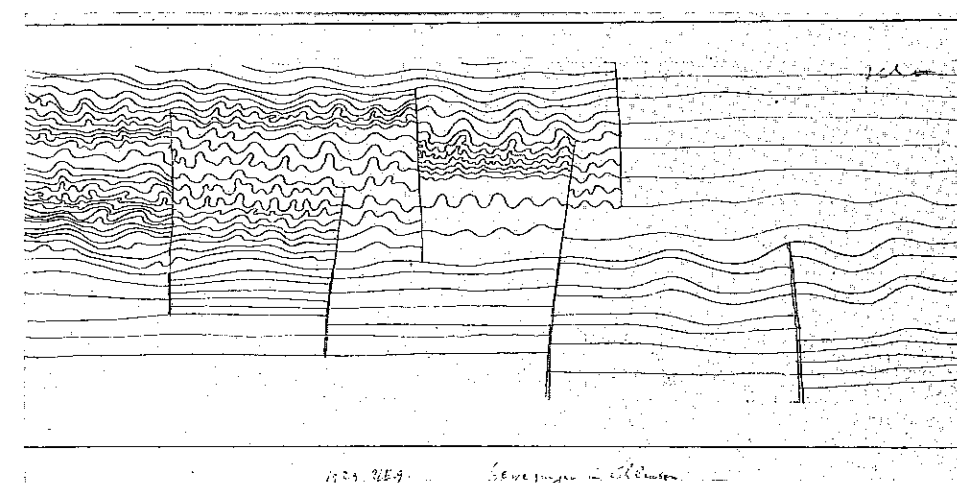
In the case of a highly porous and loose material like sea sand, one can observe with great clarity how this process takes place. The wafting air communicates itself and forms waves of smaller and larger size. The water flowing out with the tide leaves its signature with striking subtlety and decision, in its whole context of 'streaming'. One observes both linear and plastic formations that are the very essence of streaming.



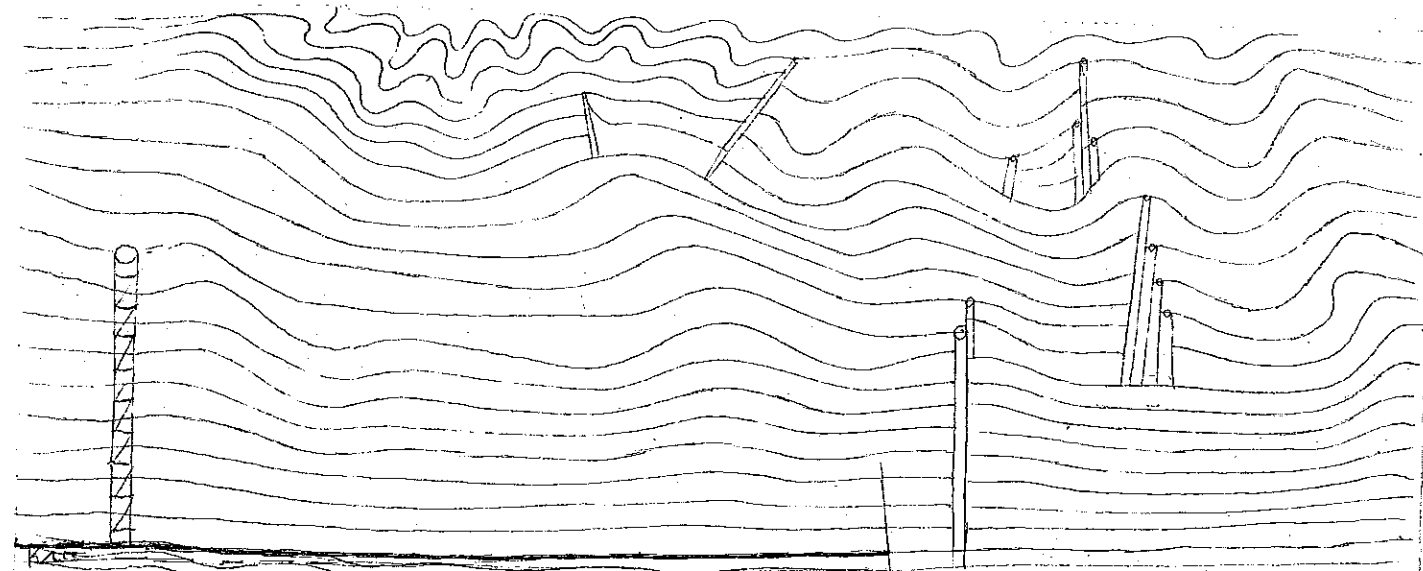
1938/2: *The wave*.
Coloured paste on paper.

1929/UE 9: *Movement in locks*.
Pen-and-ink. 11 x 30.

The normal and the departure from the normal ('rigid guideline and mobile guideline') are opposed as structural elements. Increase and decrease of flow are emphasised by structural alternation in the higher articulation (the six vertical locks).
Cf. 1925/3: *Random movement of water*, p.46, and the form-creation example 60/24, p.75.



A line needs scope in which to move, because it has been swept up into movement.



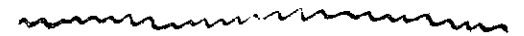
1929/UE 7: Floods.
Pen-and-ink. 12 x 30.

highest
intermediate
lower } tone

animate tone
perceptible

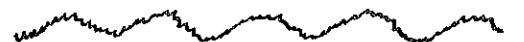
Each form of matter permits itself to be permeated in the sense of such leeway for movement, though not always in a way we can perceive.

Let us assume that wave motion is minute and even smaller. It will still be there, but only imperceptibly so.



A musical tone is in itself already a wave motion, but one that cannot be perceived. Only an added vibrato renders it perceptible. Every form of matter permits of this leeway, but not every form allows us to perceive it.

The remedy is to transmit the movement to somewhat larger, perceptible dimensions.

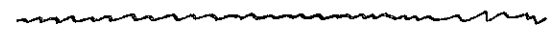
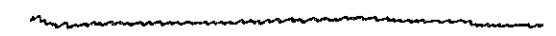


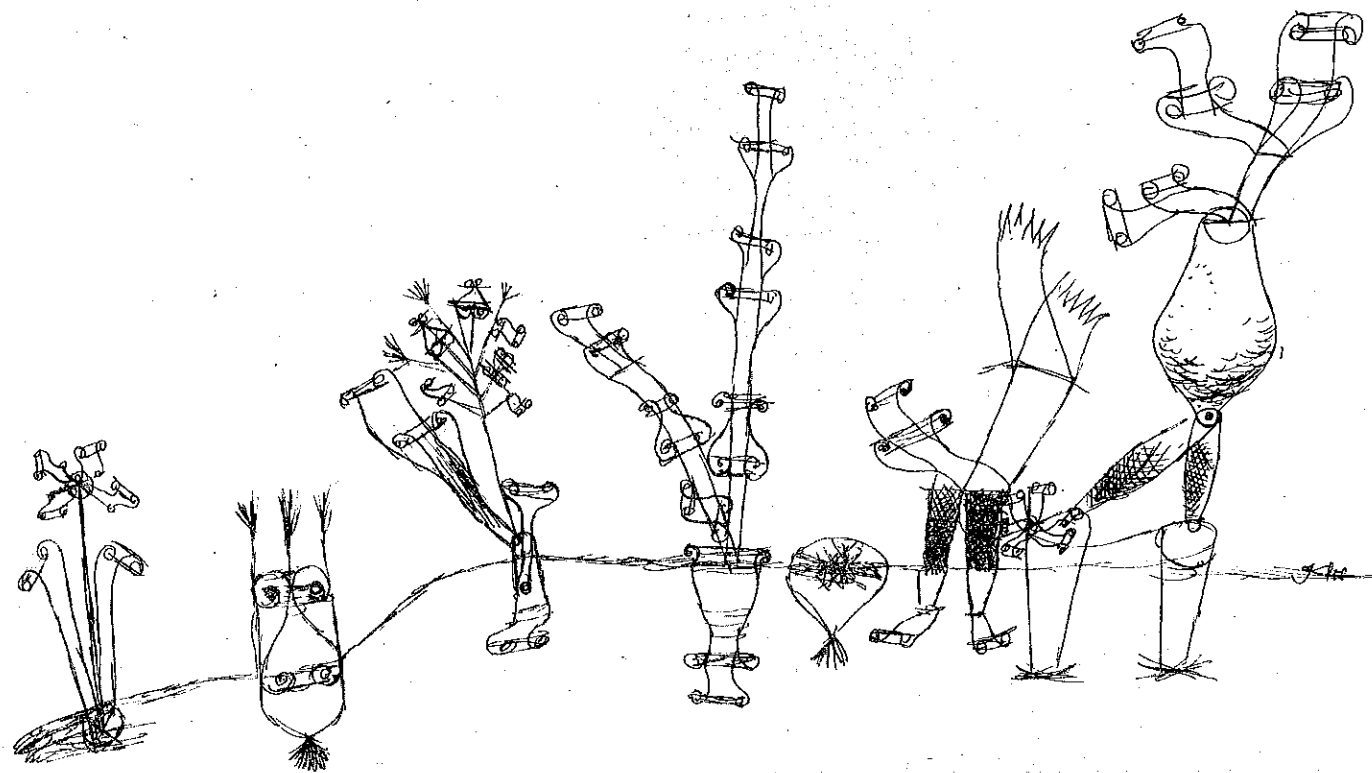
Perhaps you have noted how the tone of a singer or string player quakes or vibrates or turns on a tremolo. It is the same thing. Every sound is already a vibration of the material air, so subtle that on its own it can be perceived only as a higher or lower tone.

Such melodic music-making would be sensed as inanimate. It is precisely the vibrato that alters this chilly impression.

höchster
m. klarer
tiefer } Ton

beliebter Ton
wahrnehmbar





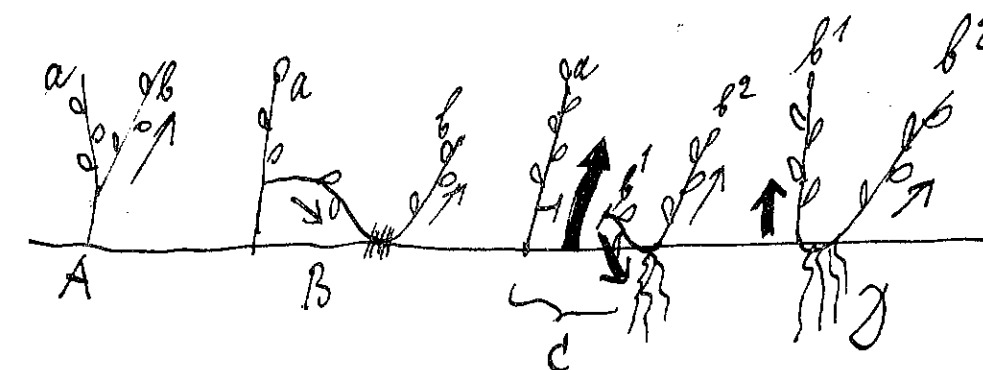
1921/166 Pflanzen auf dem Acker II.

1921/166: *Plants in the field II.*
Seven growths in a row side by side.
Pen-and-ink, 26.6 x 14.6.

Diary entry, 1906/772:
'I am lovingly caring for the pear saplings brought from Italy and have actually transplanted one vigorous branch. This form of growing also constitutes a pretty experiment in capillary action.'

A particle, in other words, must be shaped in such a way as to lend itself to movement and conduction. For particles have no separate existence, merely serving in support of larger functions. They mediate – they are the middle links that receive and transmit. A particle subserves some higher process that is capable of further development. It is a building-brick in a higher order which it transmits in several directions, over into three dimensions.

In the matter of plants: On one occasion, for example, I managed to root a slip in the following manner:



The original plant A had two branches, a and b. When it had reached stage B, I bent branch b down into the soil, where I secured it in the middle. After a lapse of time sufficient for rooting, I cut branch b close to branch a (Stage C), thus gaining a separate new plant with the branches b1 and b2. At Stage D, these two branches are shown having grown further, b2 in the original direction, b1 in the one opposite. I conclude that the appropriate structures must adapt themselves to these two directions, so that the sap may flow both up and down.

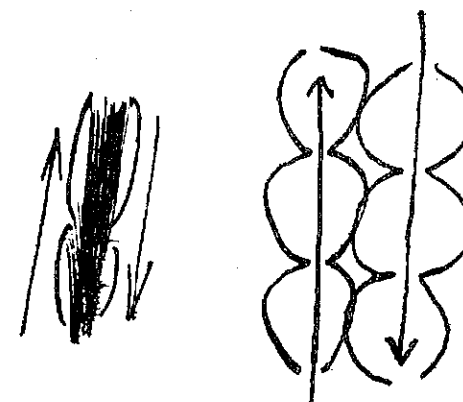


1916/35: Milkwort and pansy.
Pen-and-ink, 15.5 x 23.7.

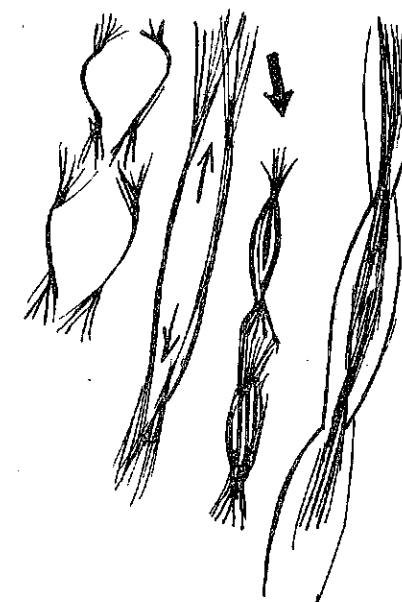
1916. 35. Kren-6082 u. Stiefmütterchen

tubelet

(Röhrenchen)



Sap rises and falls in a plant.



Such structural elements (tubelets) are capable of being used for movement both up and down. They receive and transmit in either direction. Water flows uphill only in certain circumstances. Among these is the state of being divided into tiny particles – the capillary system.



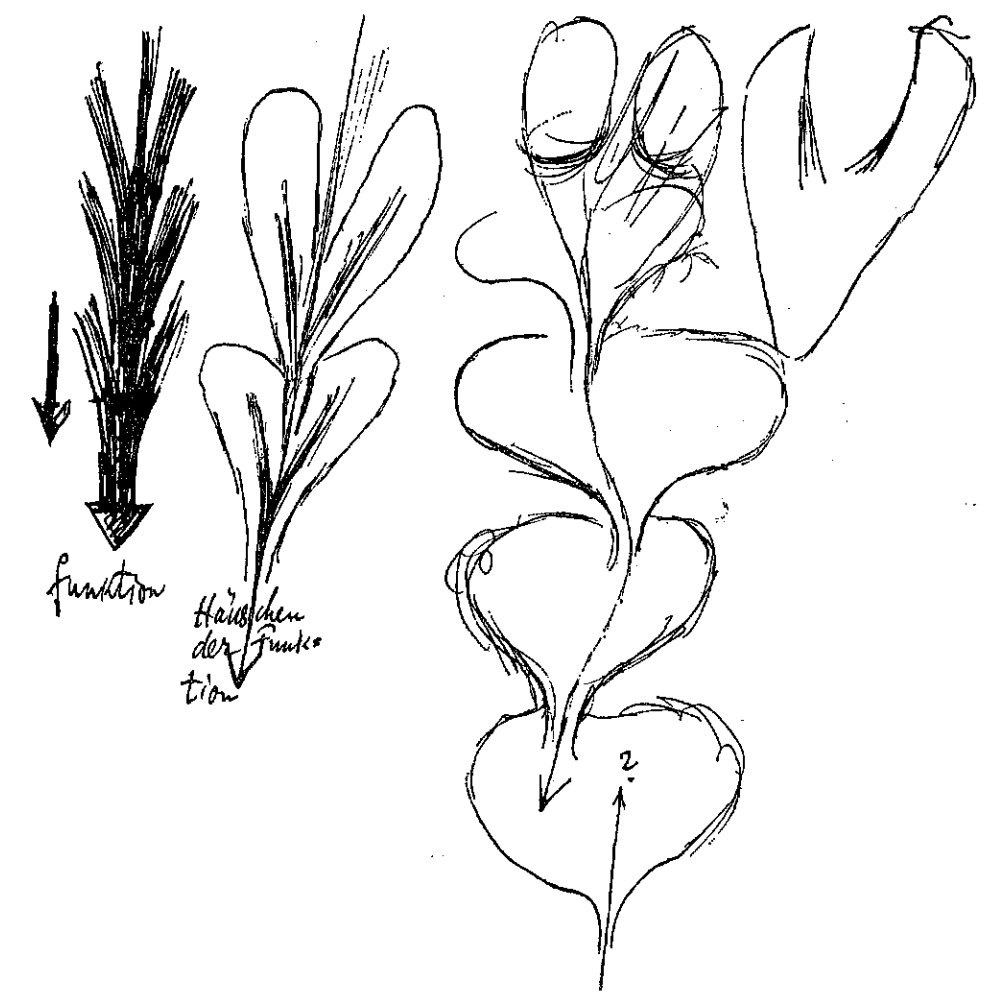
1925/x 7: A beetle.
Pen-and-ink with wash. 36 x 21.

What would be the shape of a tubelet capable of receiving and transmitting in only one direction?



Function

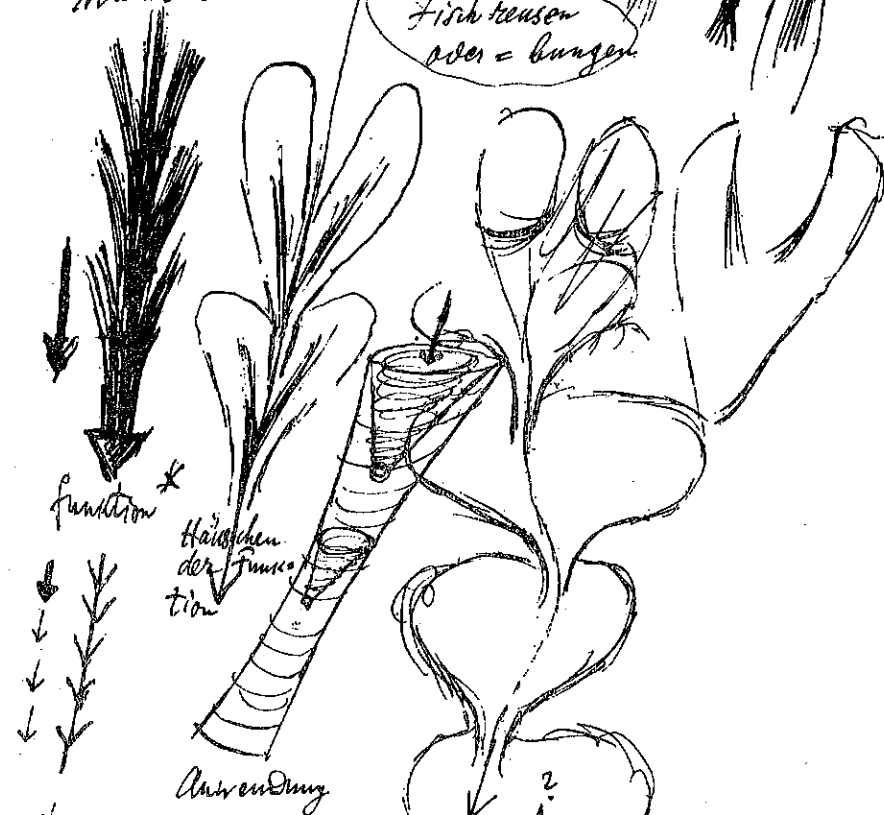
Shell for the function



Function is here conceivable in only one direction, for if it were reversed there would be scattering and no useful transmission would take place.

Nach unten die Bewegung vermitteln
Es wirt auf und gibt weiter
in beliebiger Richtung...
Wasser fließt nur unter gewissen Bedingungen
bergauf. Die eine davon heißt: Seilung in kleine Partikel, Rohr
Wie würde man ein Körperchen
sich formen das nur in einer
Richtung aufsteigen und weiterzugehen
Macht? Es

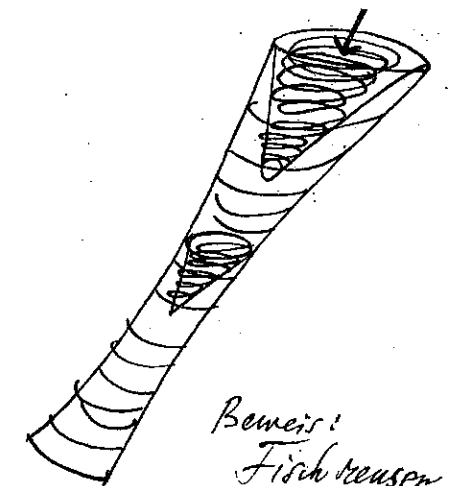
Beweis:
Fisch reusen
oder - bungen



* Die Funktion ist nur in einer Richtung denkbar!
den umgekehrt würde eine Zerstörung und keine Ökonomie
weiterführung stattfinden.
Die Häuschen für diese Funktion entsprechen. In Fisch reusen
oder Bungen können wir die Anwendung

¹ Fish trap: a kind of cylindrical net stiffened with rings of wood or metal and equipped with one or more funnel-shaped openings that admit fish in such a way that they cannot get out again. Lobster pots contain similar devices.

Shells for this type of function are shaped rather like fish traps or lobster pots.¹

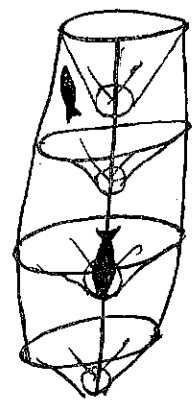
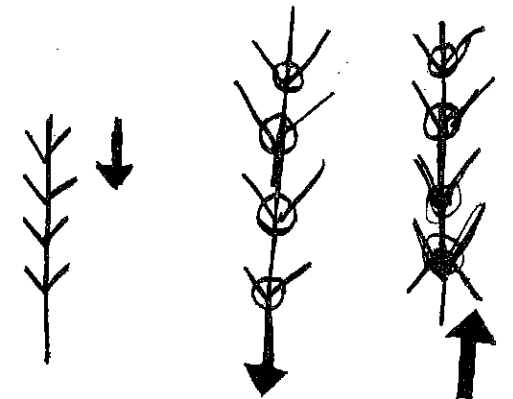


Beweis:
Fisch reusen
Anwendung oder - bungen

Demonstration: in fish traps or lobster pots

We can see how movement in such devices is channelled in the natural direction, fish passing through successive openings from compartment to compartment.

Fishes moving in the opposite direction will invariably miss the opening and get stuck, while others will move in.

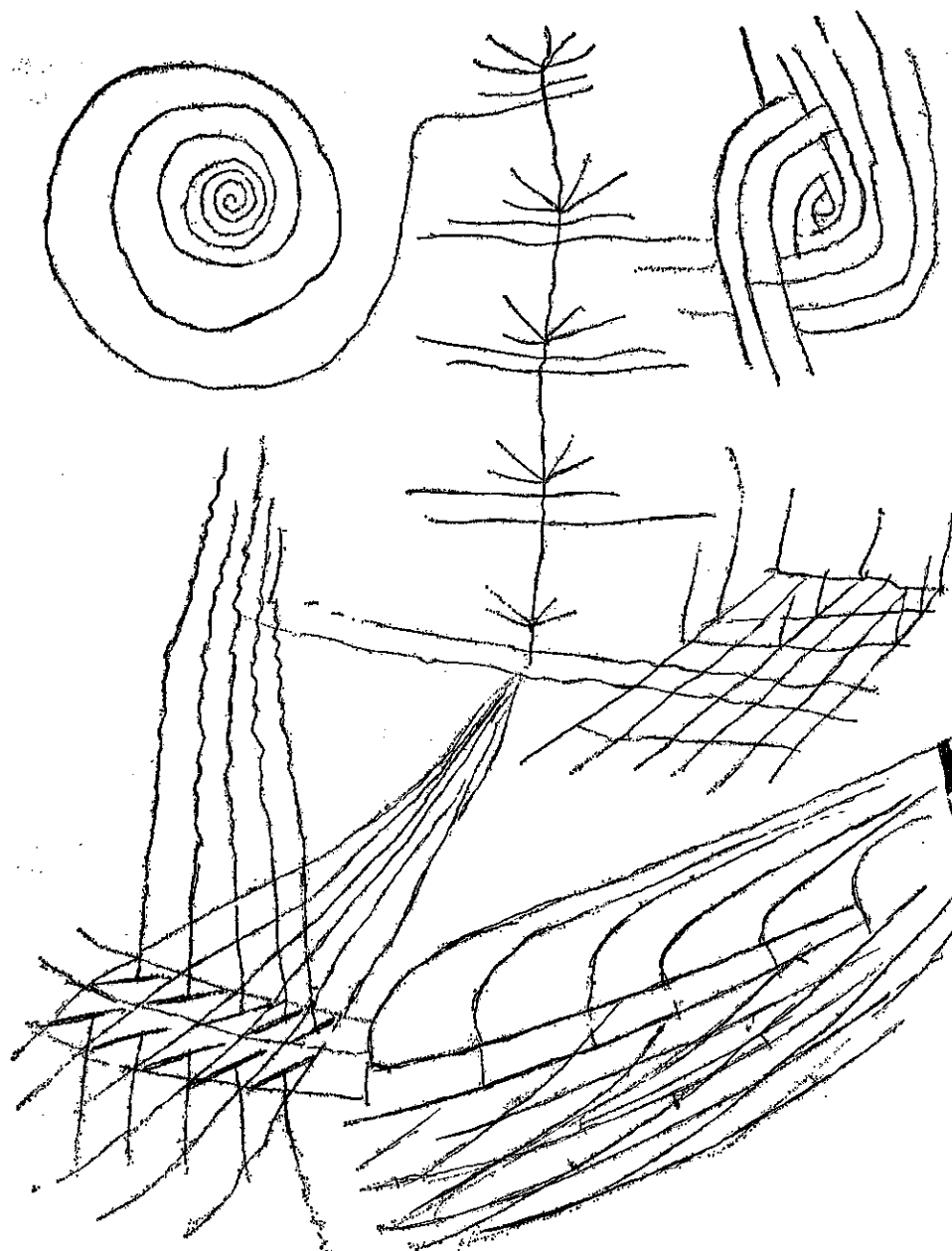


The likelihood of making progress is smaller than that of getting stuck.

A page of sketches from the Theory of form production, 45/84a: Simple and composite structural movements.

[1] and [8]: Interrupted flow.

[2]: Growth.



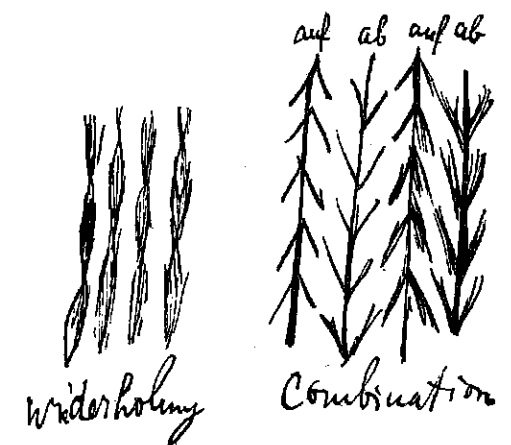
1

2

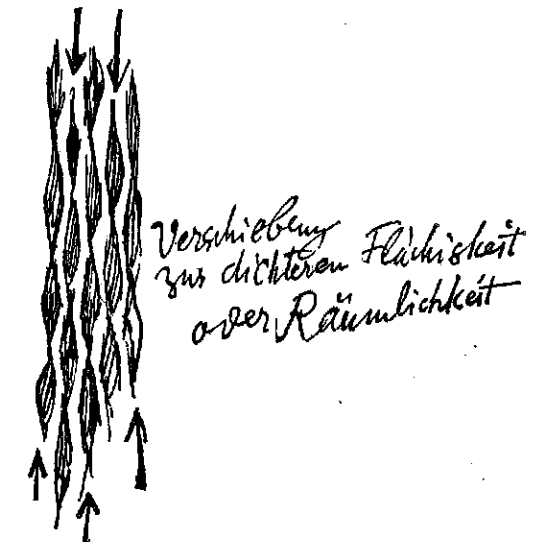
3

By repeating or combining channels that transmit in one direction or the other, or in both, we leave the area of the linear for the planar, whence we ultimately reach three-dimensional space.

- a Repetition
- b Combination: up, down, up, down



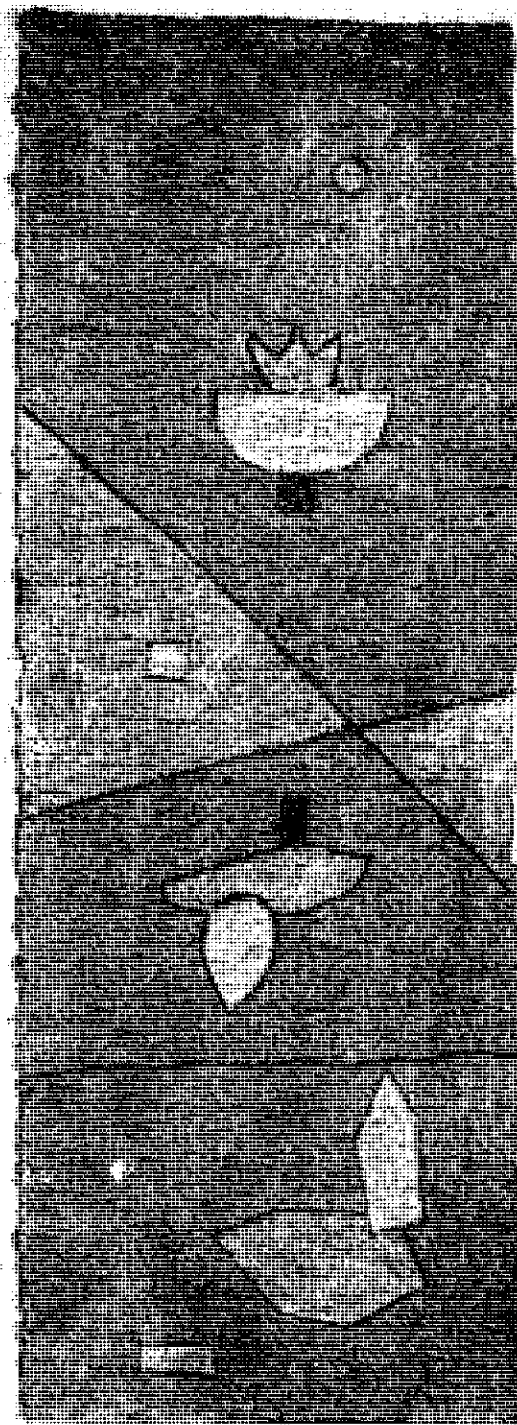
Shift towards denser two- or three-dimensionality



And now all manner of structural rhythms may once again work together, greatly enhancing variability – though managed only in this sense: No dead little cells must be strung together. The minor living functions must first be given room and shape, the tiny shelters being built around them only subsequently.

As in an apple or a snail shell.

This much as an attempt at stimulation for more vivid figuration.



1932/v 9: *Vegetational-analytical*.
Gouache on canvas, 53.5 x 19.

For commentary, cf. p. 85.

1934/u 8: *Supervegetational*.
Waxed watercolour on plaster-grounded jute,
60.5 x 80.5.

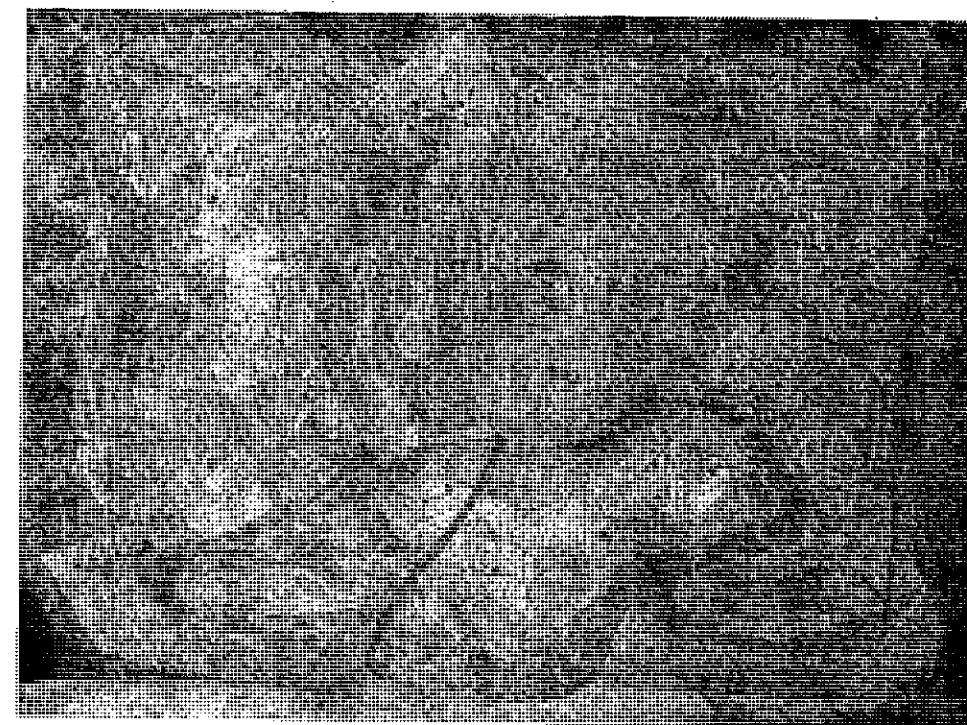
From one of Klee's notes on nature study:
'Dynamic forces are inward (esoteric), limits are
outward (exoteric). Core, interior space, material
rind, exterior space. Concepts: dynamic form –
limitational form. Additionally, the abstract: active –
linear, linear – medial.'

1934/u 8: *Supervegetational*:
Synthesis of firm and relaxed rhythms. The
individual form of the core layers is firm. The
structural elements are looser and more flowing
than the surrounding layer.

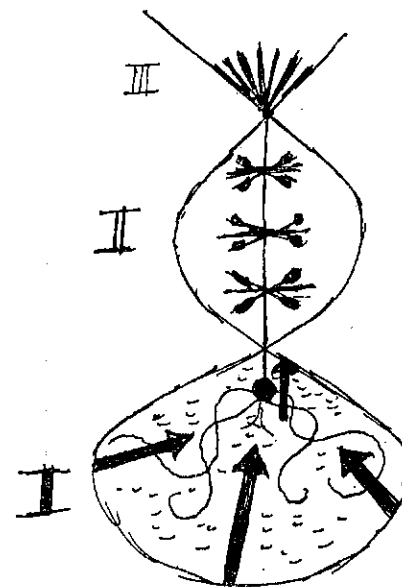
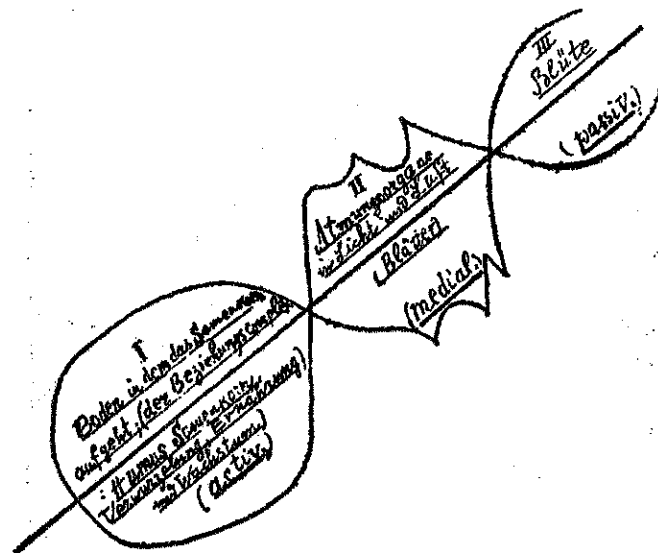
Creative power is ineffable. It remains ultimately mysterious. And every mystery affects us deeply.

We are ourselves charged with this power, down to our subtlest parts. We may not be able to utter its essence, but we can move towards its source, insofar as at all possible. In any event, it is up to us to manifest this power in its functions, just as it becomes manifest within ourselves.

In all likelihood, it is itself a form of matter, although it cannot be perceived with the same senses as the more familiar kinds of matter. Yet it is in these familiar kinds that it must reveal itself. It must function in union with matter. Permeated with matter, it must take on living, actual form. It is thence that matter derives its life, acquiring order from its minutest particles and most subordinate rhythms all the way to its higher articulations.



In 'Contributions to a theory of pictorial form', Volume 1, pp.343-351, the 'appropriate choice, formation and accentuation of organs is treated. The nature of real forms of movement and the organic connection between them'. Klee demanded 'that the organic context must be plain to perceive, first through the very form of the organs, and again by the emphasis given these forms in their representation'. This is demonstrated by the example of plant form:



- 'I' Let the active force be the soil in which the seed opens: The complex: soil, seed, nourishment, growth, roots, which produce the form [I].
- 'II' Rising into the light and open air the breathing organs form: one or two tiny leaves, and then more leaves and more leaves.
- 'III' Result, the flower. The plant is full grown.'

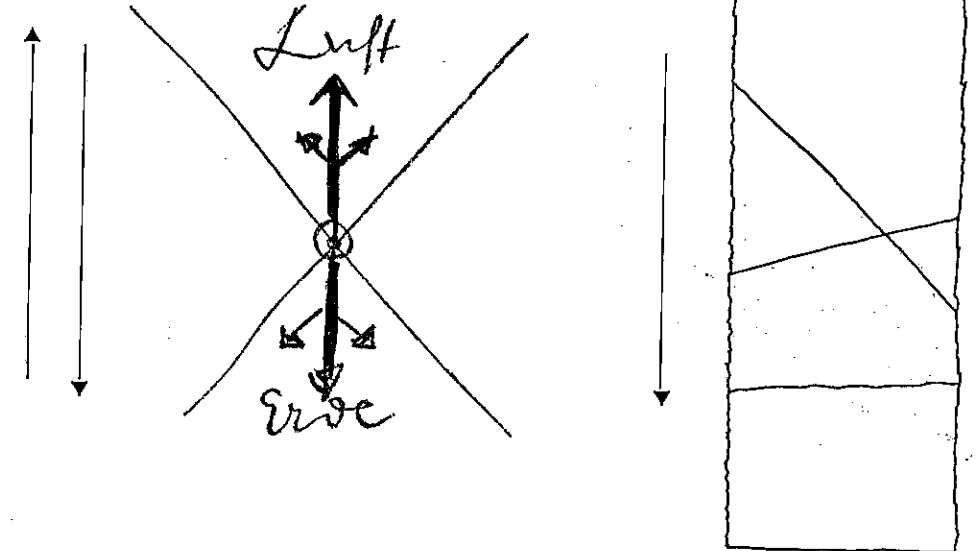
Comments to 1932/v 9:
Vegetational-analytical, p.62.

The growth process from seed to flower, synthetically represented, conversely suggests an analytical approach, from the flowering of the plant to the inorganic and mineral realms.

In 1932/ *Vegetational-analytical*, the analytical representation uses diagonals to create four zones. (Cf. 'Pictorial schemata of the 1st, 2nd and 3rd laws of statics and the possibilities of compensation in upright construction', Volume 1, p.414; also 'Mutual interdependence of extension in the air space and on the ground', pp.29 f.) The 'product' has been dissected into the stages of its current phenotypes. The phases of growth, delimited in space and time, are represented individually, in sequence (analytically). Cf. the paradigms for synthetic form representation: 1920/188: *Plants in the field*, Volume 2, p.42, and the example of form creation on the opposite page.

1920/205: *Sketch for realm of the plants, earth and air*. Pen-and-ink. Volume 1, p.314.

'The object grows beyond its appearance through our knowledge of its inner being, through the knowledge that the thing is more than its outward aspect suggests. . . The sum of such experience enables the "I" to draw inferences about the inner object from the optical exterior and, what is more, intuitive inferences. The optical-physical phenomenon produces feelings which can transform outward impression into functional penetration more or less elaborately, according to their direction. But there are other ways of looking into the object which go still farther, which lead to a humanisation of the object and create, between the "I" and the object, a resonance surpassing all optical foundations.' For the full text, cf. 'Ways of Nature Study', Volume 1, p.83.



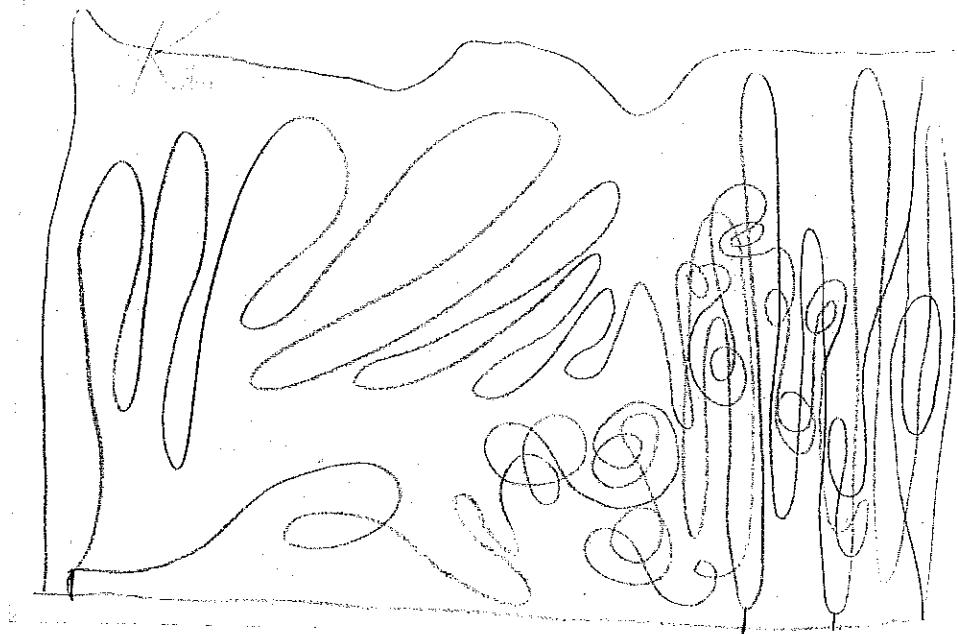
There is resonance inside the particles, immanent within them. Their oscillations range from the very simplest to composite modes. Inexorable law must express itself throughout. The bow can have no pity. Every expression of function must be cogently justified. Only then will that which is in the beginning, that which mediates and that which is at the end, belong together intimately. And nowhere will the dubious be able to obtrude, for every part fits ineluctably into the next. Only in this way can it be done. One must not leap in at random, least of all at the tail end. One must get in at the ground floor. That alone will avoid rigidity, and the entire growth process will then function without interruption.

1931/x 5: *Foliage*,
India ink, 24.2 x 30.7.

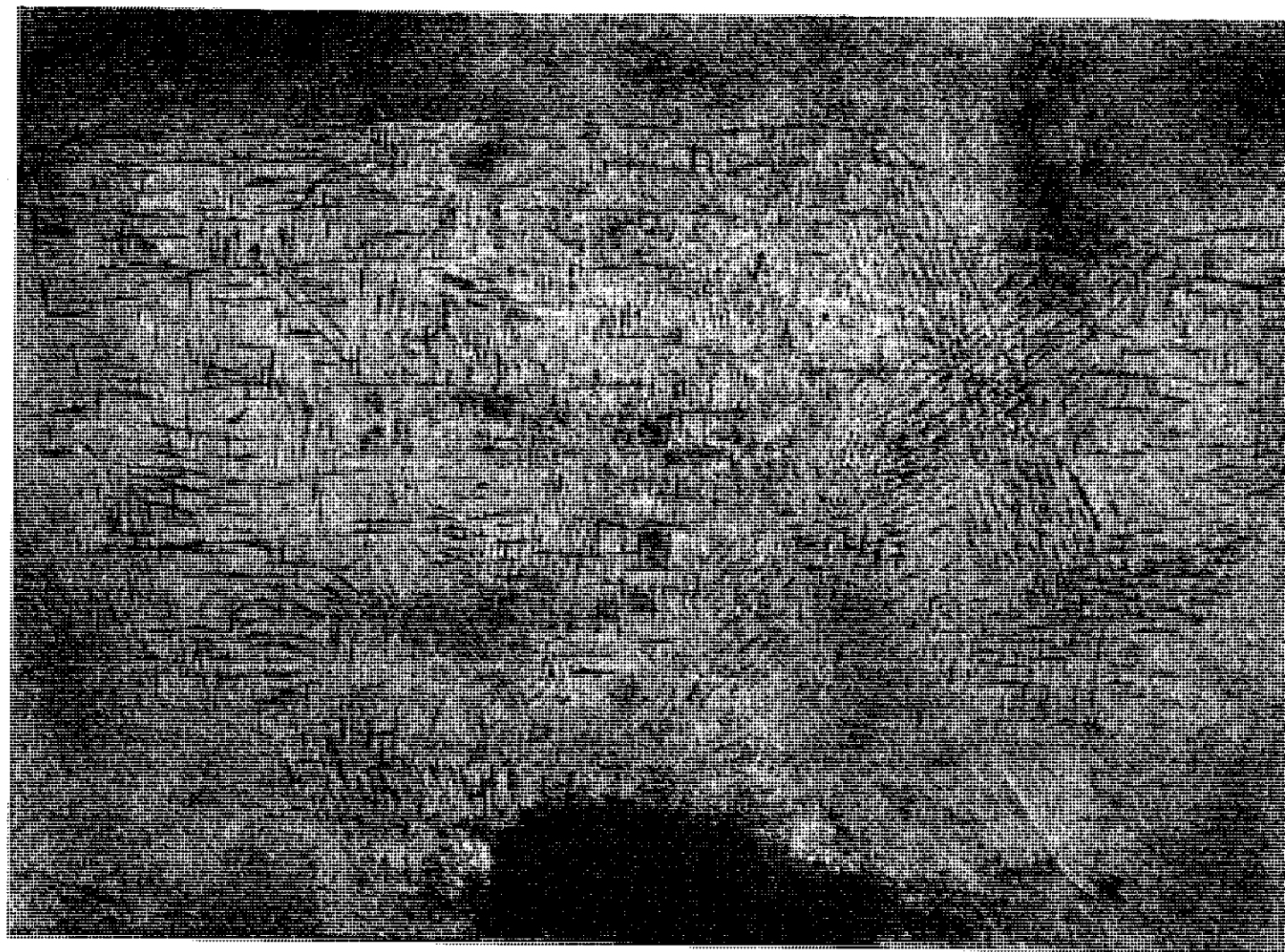


1935/18: *Wooded continuity*,
Pencil, 17.9 x 27.8.

Wherever there are gaps or crude tears, however, nonsense always emerges as such, in various guises. Dead forms, creaking noise, moans, breaks, monstrosities. Or, when not quite so bad: Infertility, barrenness, pseudo existence, casual false-fronts, belonging to nothing. Things without growth. Eyes without function. Unnaturalness, surpassingly fair. Aestheticism. Formalism. Whatever rests on the foundations of life, on the other hand, is good, when new formation and preservation each find themselves in the other.



Let us, therefore, think not of form but of the act of forming. Let us stick to the path, to the unbroken connection with ideational autochthony. Let us thence cogently lead the shaping tendency further, until it permeates parts and particles. Let us step by step translate this tendency from the small to the larger, advance towards the realisation of the whole, retain creative leadership, never allow the creative reins to drop from our hands.



1925/m 9: *Southern coast*.
Watercolour, 27 x 37.

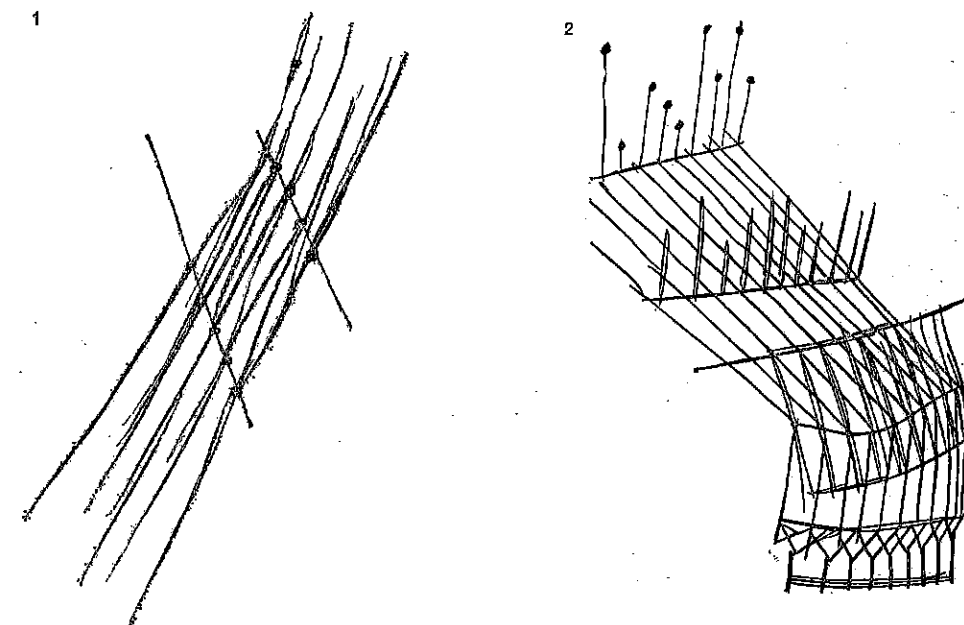
Alternation of firm articulation and broken structures, 'newly adapted to the general character in the various parts, accented more or less, interrupted when the context demands it, only to be resumed once again'.

From structural character to higher proportions
Higher proportions of changeable structural character
Comparative movement
Forming a higher articulation, linear and planar
Circulation as a finite temporal process
Relativity of articulate elements
The circulation of the blood as an example of figuration
Composite events with composite means

4 December 1923

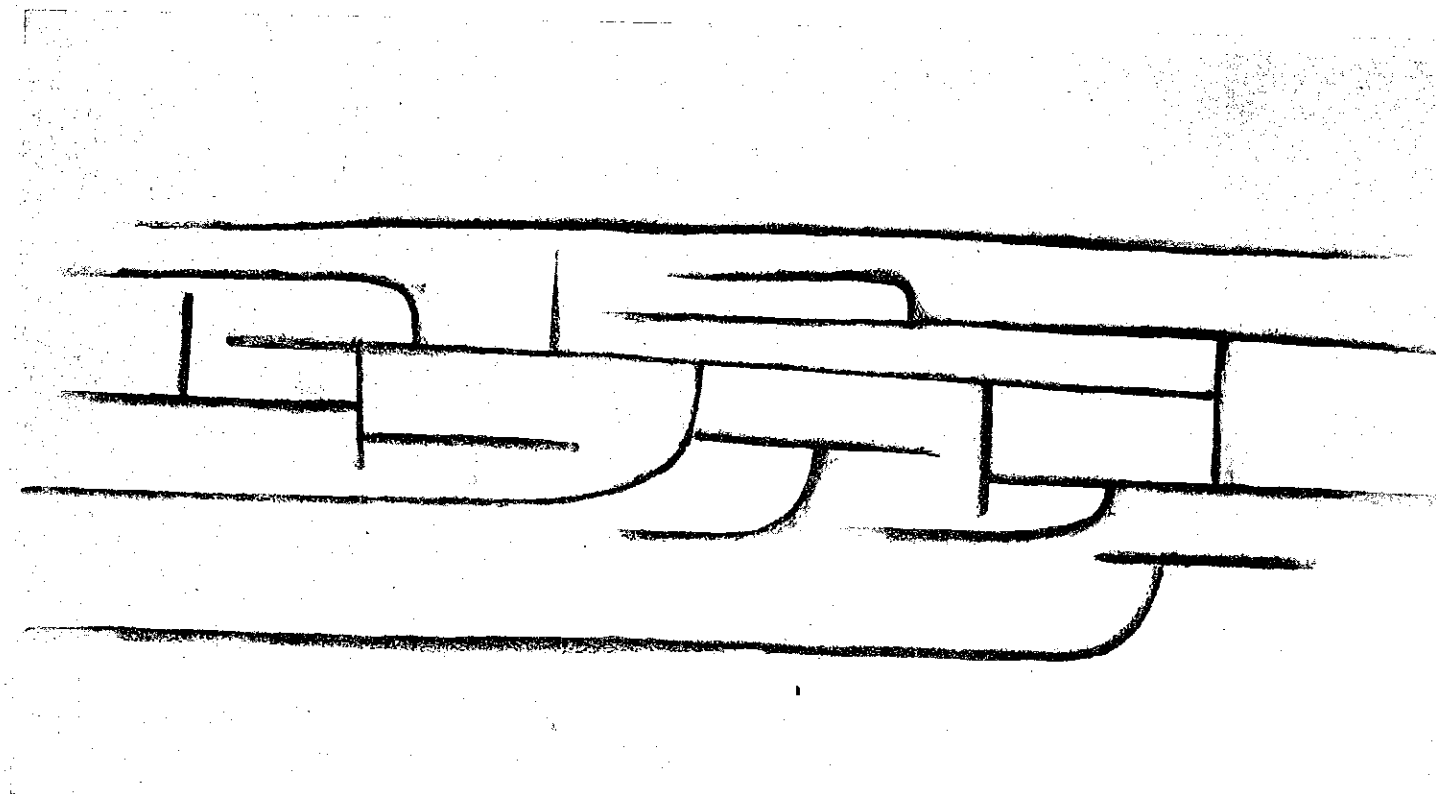
[1] Course of movement in simple, composite structure. 7/52.

[2] Composite course of movement as an example of the next higher formation.
From Klee's calendar, 1928/29.



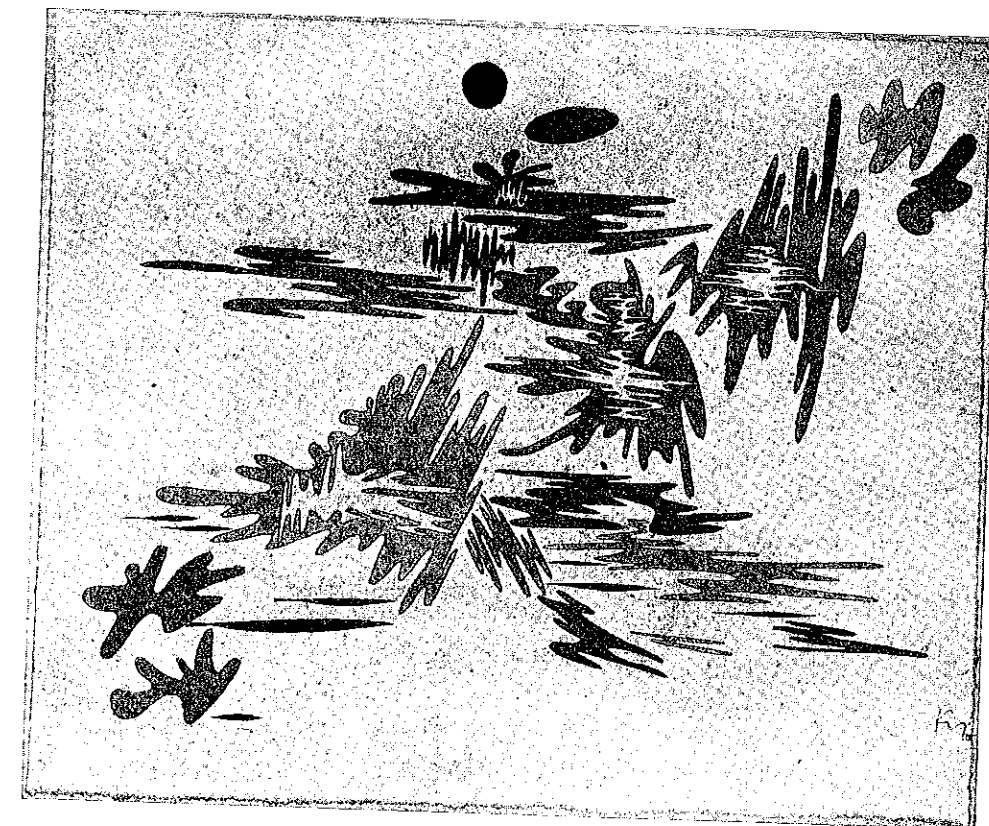
¹ Crossed out: 'guidance, basis', replaced by *Formung*.

Having on recent occasions come to grips with the nature of structure, let us take the next step, to higher proportion. This does not mean that we have abandoned the realm of structure, for we shall never skip this stage of the initial organisation of matter. Structure is not a bridge that is no longer needed, once one has gained the farther shore. It is an act of material forming¹ that proves its effectiveness up to the highest regions of construction. It is a kind of rhythm of the small parts, existing as such beside the larger articulations and adapting its character anew in the various parts, accented more or less, interrupted when the context demands it, only to be resumed once again.



1937/p 7: *Water route.*
Charcoal and coloured paste. 25.9 x 48.5.

River course: Let us first take a very simple example from nature of a higher proportion with changeable structural elements. Water from the hills gathers in rivulets that join and flow on gently. The valley has itself taken on gentle form (stemming from the history of its development, which must be considered in all treatment of form). Its gradient in turn forms a slightly wavy water course moving at moderate speed. These parameters of moderate form and movement change abruptly and unexpectedly. At the deep end of the upper and more moderate valley comes a sudden ravine, through which the water hurtles in a steeply descending course.

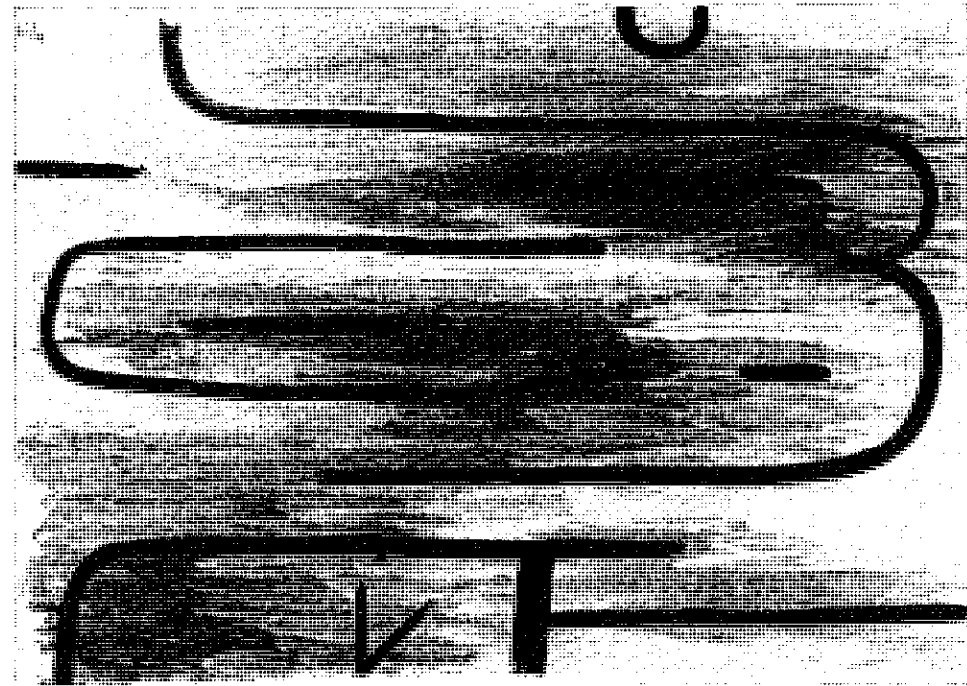


1929/3 H 20: *Feeling appearances on the water.*
Watercolour, 26 x 31.

A small intermediate section forms a connecting link between the earlier calm phase and the new one with its agitated movement to and fro in all directions. The waters now eat more and more deeply into the rugged riverbed, undermining the banks, until whole sections collapse, increasing the difficulties and whipping up an aggressive fury.

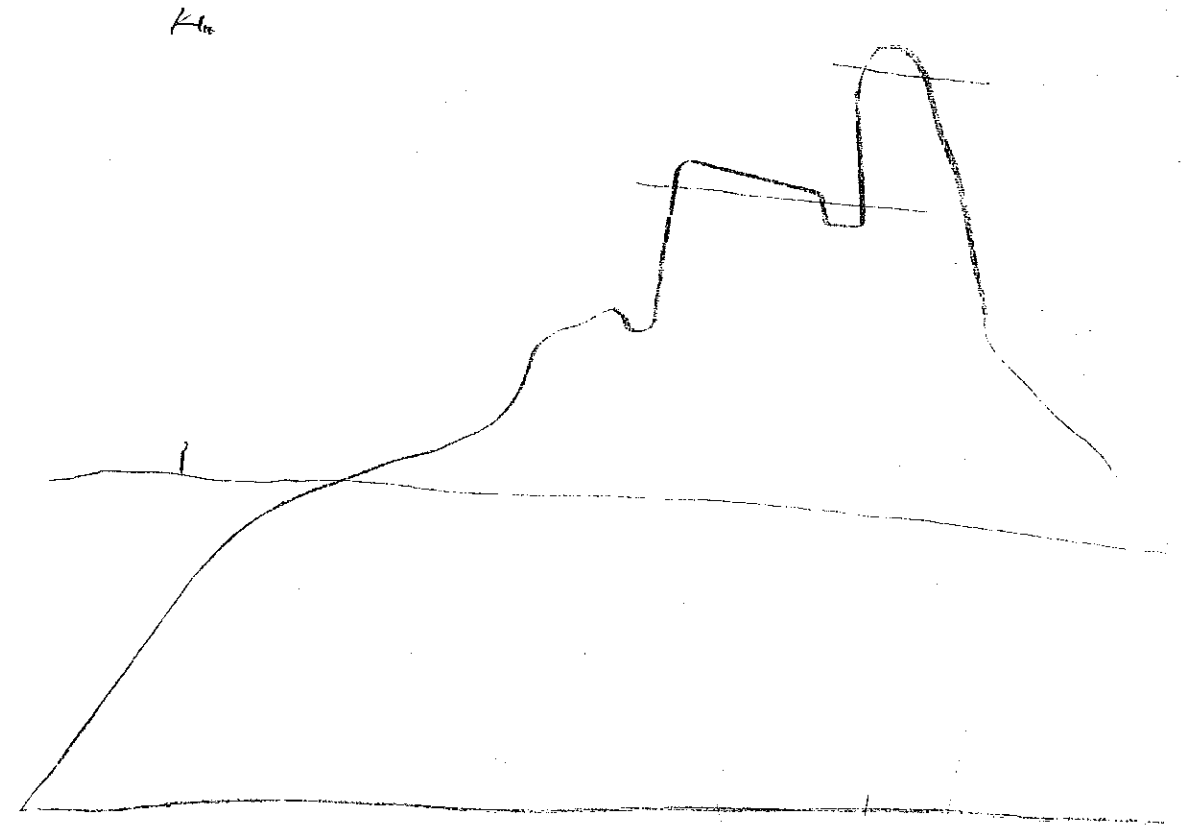
The earlier gliding pressure that parted merely into ripples, now gives way to angry sweep and momentum.

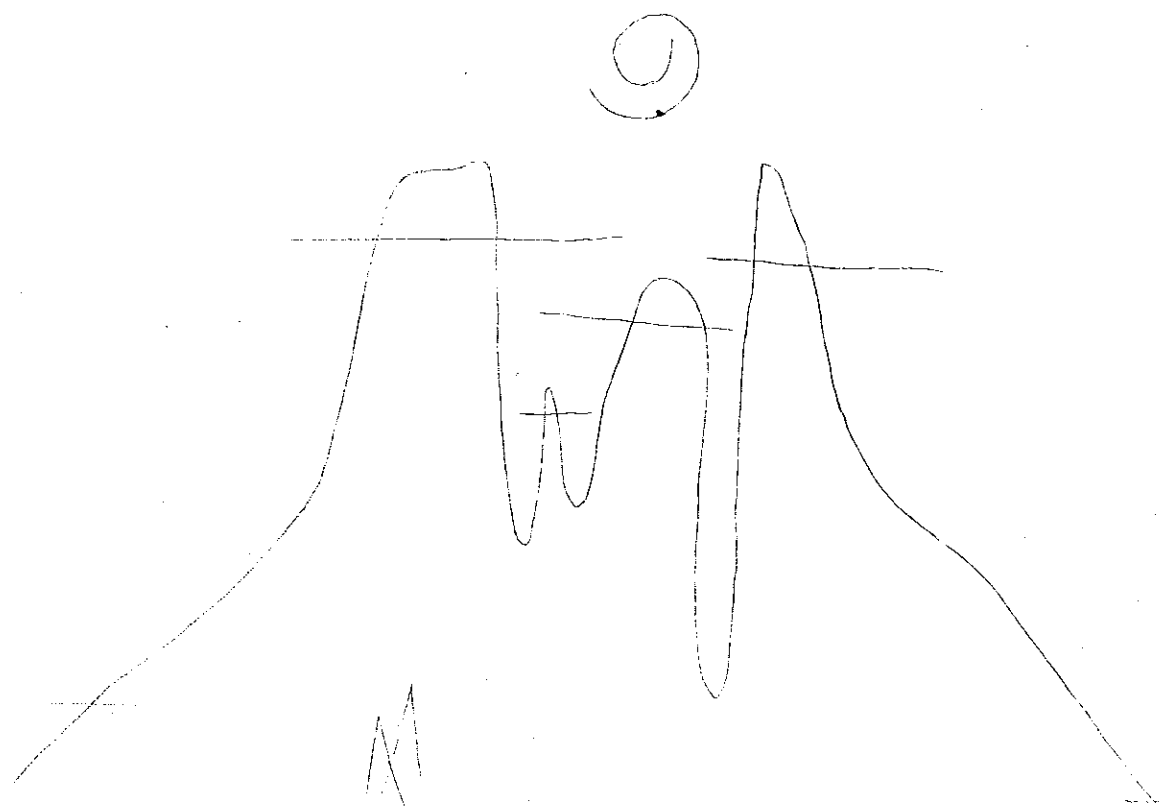
This continues for quite a while, until the section gradually calms down along its course. This second intermediate section leads into a third part, a second one of calmness, which continues for a while into the horizontal extension of a broad lake, where it more and more evades perception.



1938/13: *Flowing*.
Impasto coloured paste on newspaper. 33 x 48.5.

1934/N 9: *Sinking flood*.
Pencil. 48.5 x 62.2.





1934/N 7: Measured heights.
Pencil. 48 x 63.5.

Widest contrast span.
1-3a in major extent.
4 as minor intensity. 60/24.

The water course
1 aggregation
2 quiet course
3 unquiet course
4 mouth

Examples of formation [1]:

'Curve of a development related to the concepts

1 major contrast, direct, or

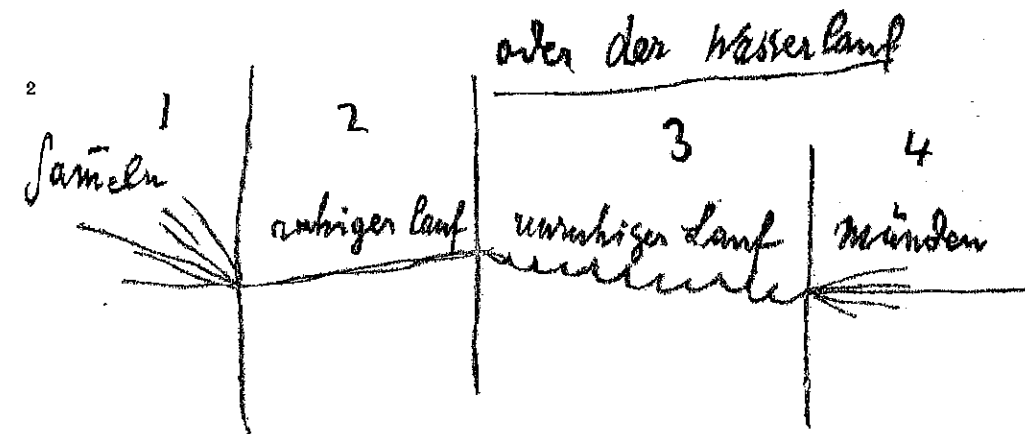
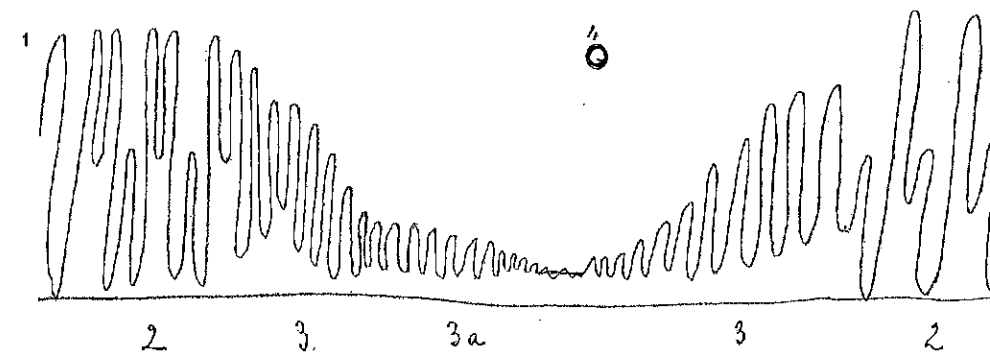
2 indirect

3, 3a minor contrast, i.e. the concepts

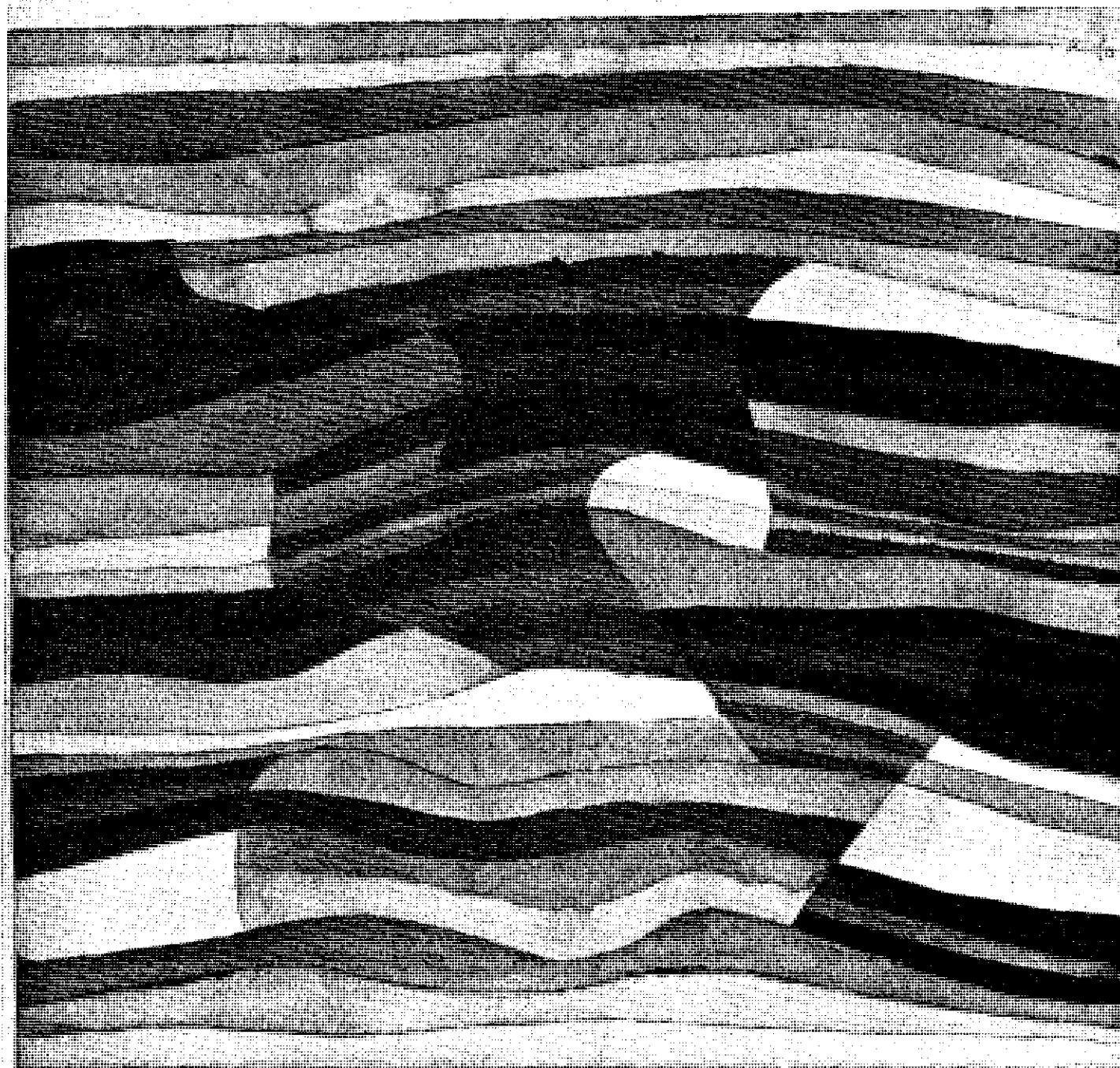
1-3a in major extent,

4 as minor intensity.' 60/24.

'Major contrasts juxtaposed provide vigorous expression. Indirect major contrasts spread out and soften the vigour of expression. Big leaps result from higher energy than half-leaps. Minor contrasts, even when represented direct, also soften the vigour of expression. When indirectly represented, they soften by enrichment and relaxation of tension.'



Water course [2]. By expanding the conceptual field, I create a higher whole that may be perceived. I set new and farther limits to representation, or I diminish what is represented within the old limits. IV/188.



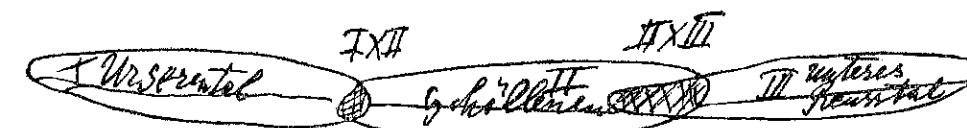
1929/230: *Moving rapids*.
Watercolour. 34 x 36.7.

Seen as a whole, what we have before us is a proportion of higher order, resulting from the mutual relation of three parts.

In the middle is that fiercely agitated main part, the *Schöllenen* [gorge].

wildbewegt

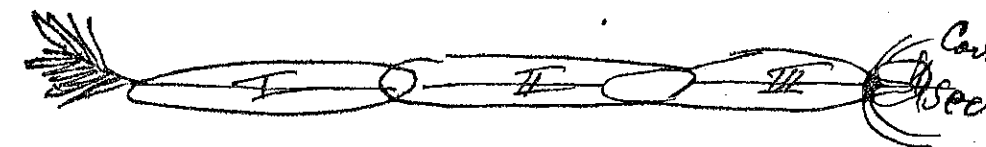
At the outset, the gentle part, up in the *Urseren* valley.



They have a brief stretch in common, the short transition for the leap from I to II.

At the end comes the second calm stretch, the lower *Reuss* valley, while the shared region of gradual calming mediates between II and III.

The initial part I is preceded and introduced by a process of aggregation,



¹ Variant of the passage, partially crossed out:
'... and at the end, as a concluding coda, the lake
part, where the end of movement takes place'.

and at the end, as a coda, comes the lake part, where movement ebbs away.¹



I with II and III
II with I and III
III with I and II

or

I with the whole
I with I and II and III
II with I and II and III
III with I and II and III

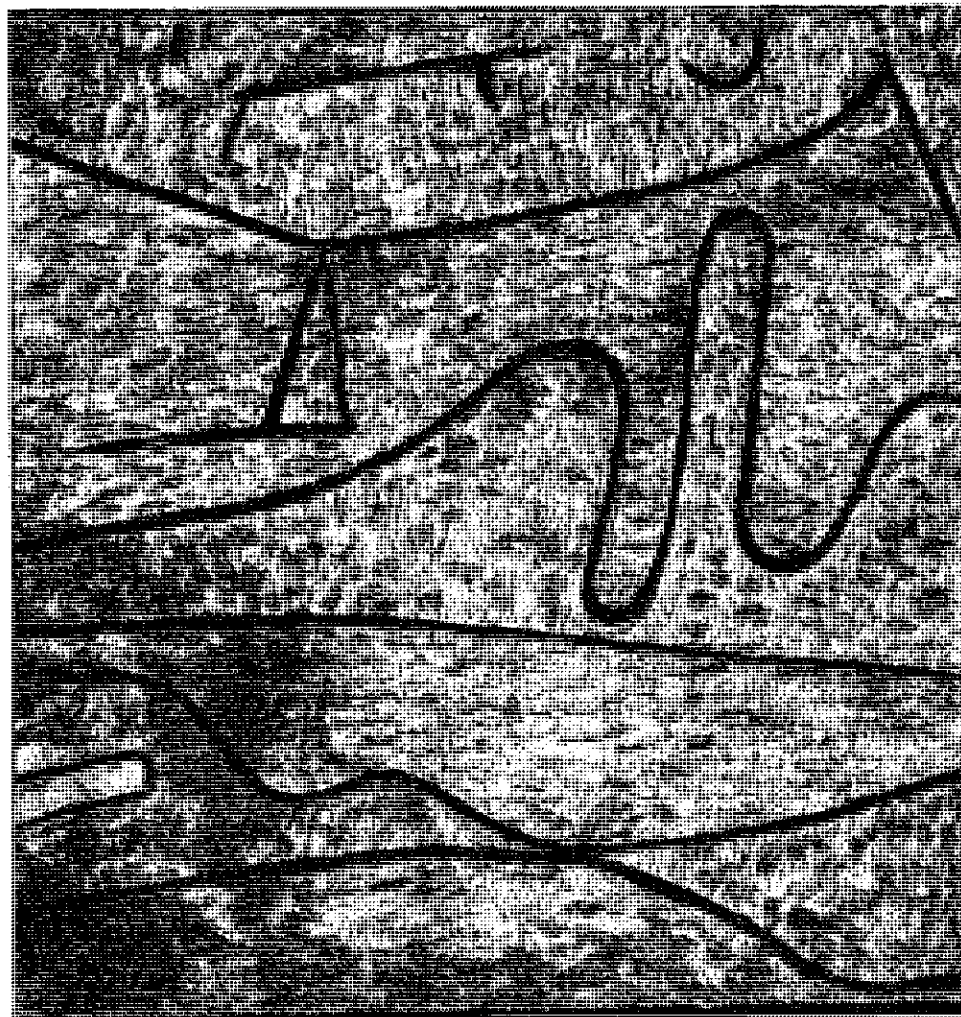
Well, how does such an articulation work? The parts and intermediate parts interlock mutually and with the whole. They differ in the character of their structure and, according to the way the emphasis is placed, in their extent.

I has a definite relation to II, II to III, and III in turn to I, each in characteristic fashion. As for character of structure, I and III are more open, by virtue of more limited movement, while II should be held at a rather denser level, because in it movement coincides with countermovement.

Further comparisons that may be made:

I mit	II + III	oder	I mit dem ganzen
II mit	I + III		I mit I + II + III
III mit	I + II		II " " "
			III " " "

Such comparison of movement constitutes the essence of proportional action. It is the way such proportions function. At the same time, we should not allow ourselves to be confused by the fact that an element of extension is not precisely commensurable with an element of concentration. We are not face to face with mathematics here. Nor is it a matter of fathoming measurabilities or weighabilities. We are concerned with comparing the impressions made by the various parts, and it is precisely the difference between at least two parts on which a higher proportion hinges. You will often find, for example, that parallels are no longer parallels, when some third element intervenes and interferes (optical illusion as reality).



1939/JJ 8: *Reefs in the channel*.¹
Coloured paste on jute, 48 x 44-4.

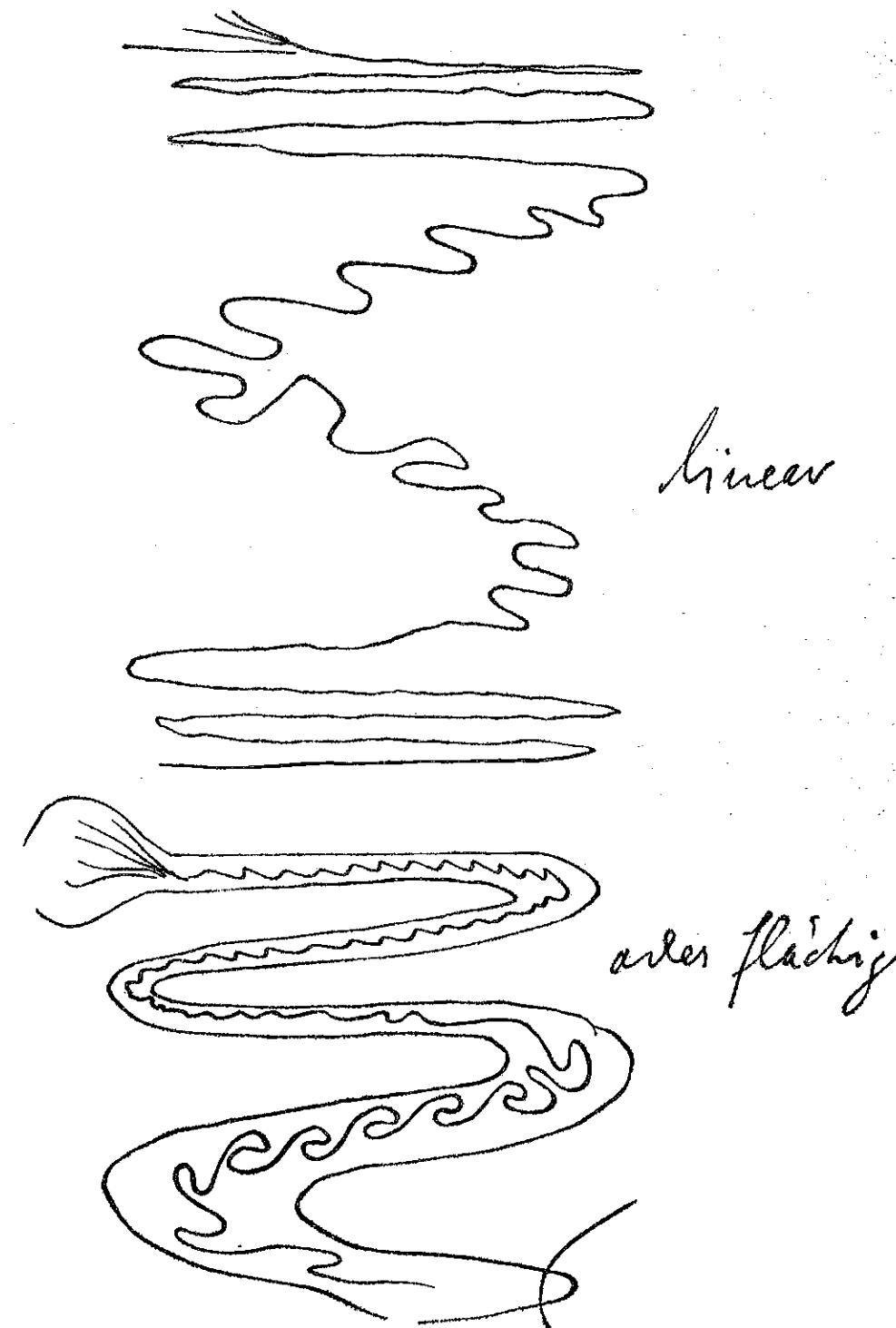
¹ In Klee's late work, the elemental contrast between 'rigid guideline and capacity for movement' (the normal and the departure from the normal) is emphasised beyond the structural level to such a degree that line itself becomes individualised. The contrast of 'structure versus the individual' is largely eliminated, duality is treated as unity.

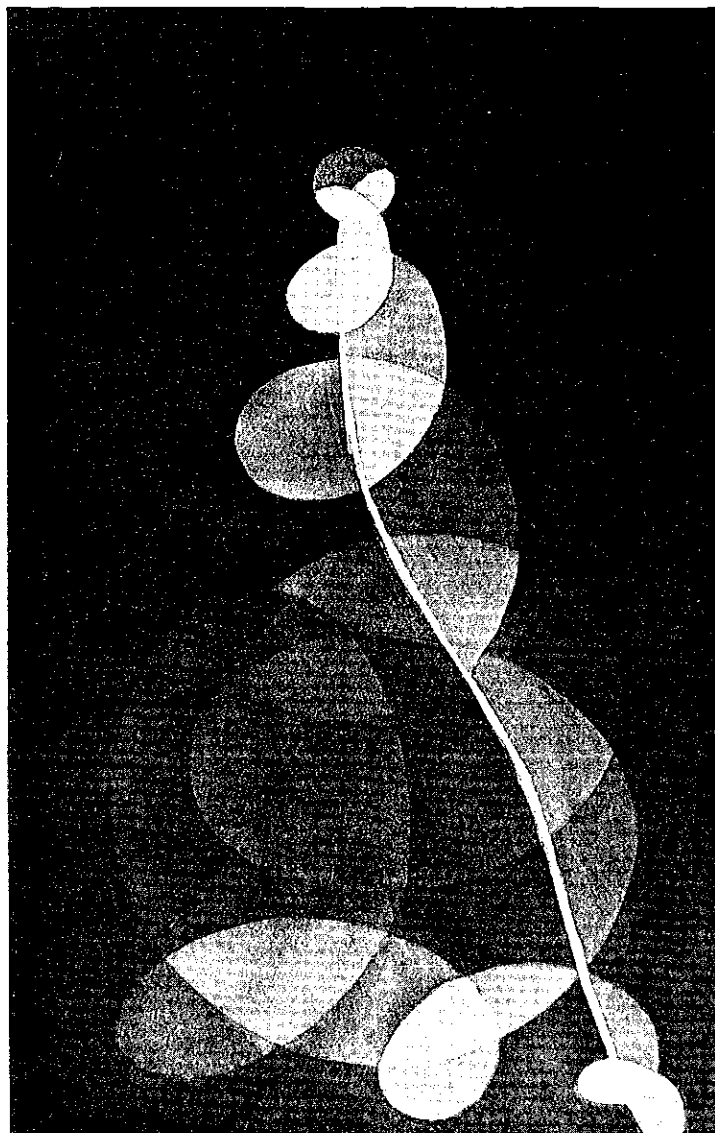
Cf. Example of formation 60/24, p.75, and the contrast between rigid guideline and capacity for movement, p.47; also 1929/UE 9: *Movement in locks*, p.49.

Act of forming (composition).
The given schema is by no means obligatory.
A living representation may be realised in more than one way.
Let me give but a few hints in this connection.

Linear

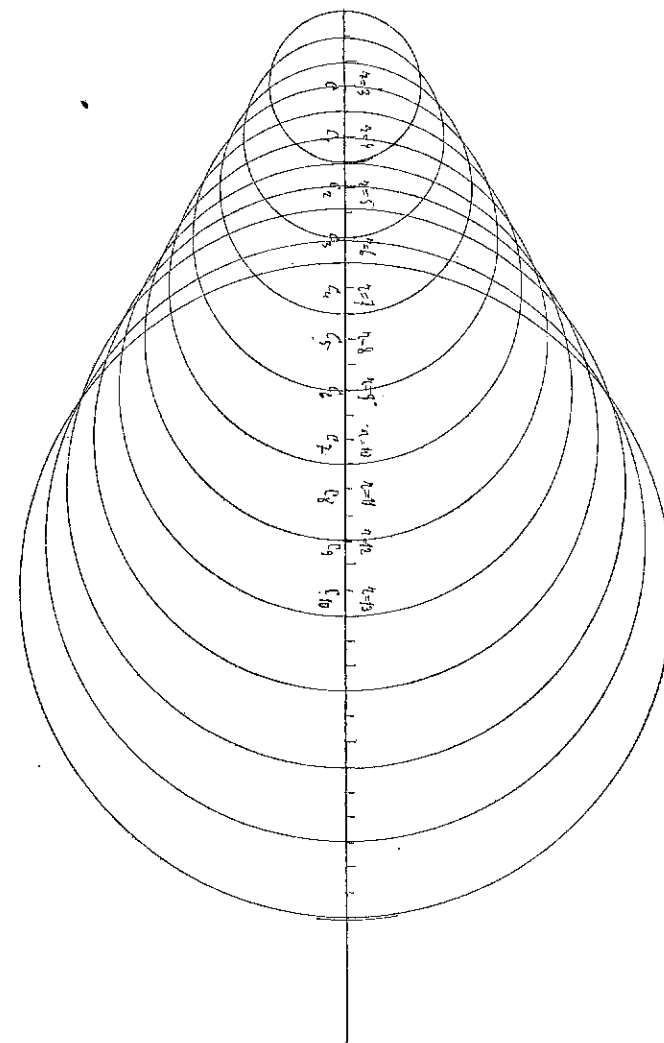
or planar





1932/v 14: *Helix*.
Black-and-white watercolour.

'The spiral as the purest form of movement conceivable.' The helix in spatial-transparent representation and free progression. Polyphony as multivoiced interpretation of tonal values.



Progression
 centrum = Bewegung 2+2+2+2+2 etc.
 radius = 3+4+5+6+7+8 etc.

Progression

Central movement: 2+2+2+2+2, etc.
 Radial movement: 3+4+5+6+7+8, etc.
 From: Progressions within the normal internal tension relation of the elementary forms (general progressions), 17/52-120.

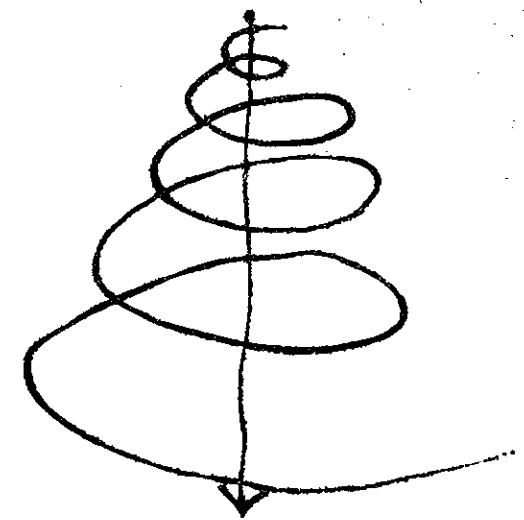
'Linear circle-centre movement at regular (even) intervals', combined with progressive radial movement (analogous to shifting or rolling curves, combined with radial movement). 17/65.

¹ Crossed out: 'Making it receptively possible.'

The challenge is to project something of rather long linear extension on to a modest area limited on all sides. A temporal art like music or poetry could meet this challenge without any difficulty in the most natural way – precisely the way of temporal sequence. Yet there is an analogy in both these arts, notation on the printed page or music sheet. On both such pages the eye brushes past line after line. No one can keep us from insisting¹ that this temporal reading of a kind of pictorial writing be applied to our plane as well. Even if we wish to avoid the leap of the eye from the end of one line to the beginning of the next, that may be managed quite well.



A spatial approach might make the natural mode of representation take on the form of a spiral movement from top to bottom.



To p.85: 'The point of contact of each circle with the next smaller one varies in three directions.' 17/75.
From: Progressions (Progressive movement). 17/49-120.

Constructive formation example 17/75, progression with directional shifts, may be viewed as a two-dimensional scheme for the watercolour 1932/v 14: *Helix*, p.82. This watercolour represents a three-dimensional rendering. The 'objective-spatial case' with free progression relations.

die Berührungspunkte je eines Kreises mit dem nächstkleineren.
Wechseln sich drei Richtungen ab

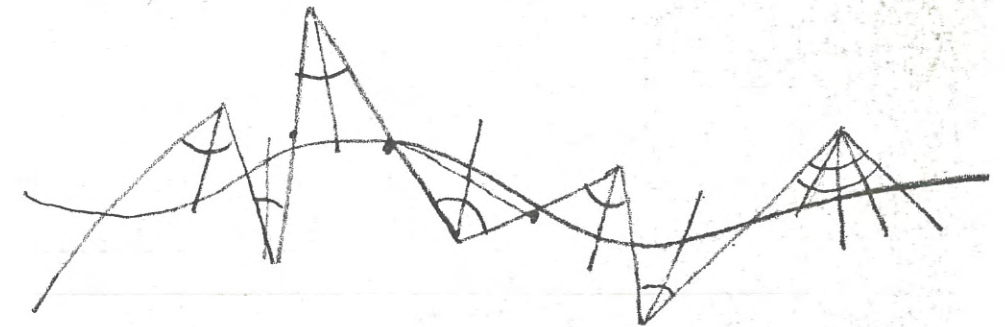


1939/MM 14: *Stream ravine near Y.*
Watercolour. 27 x 21.5.

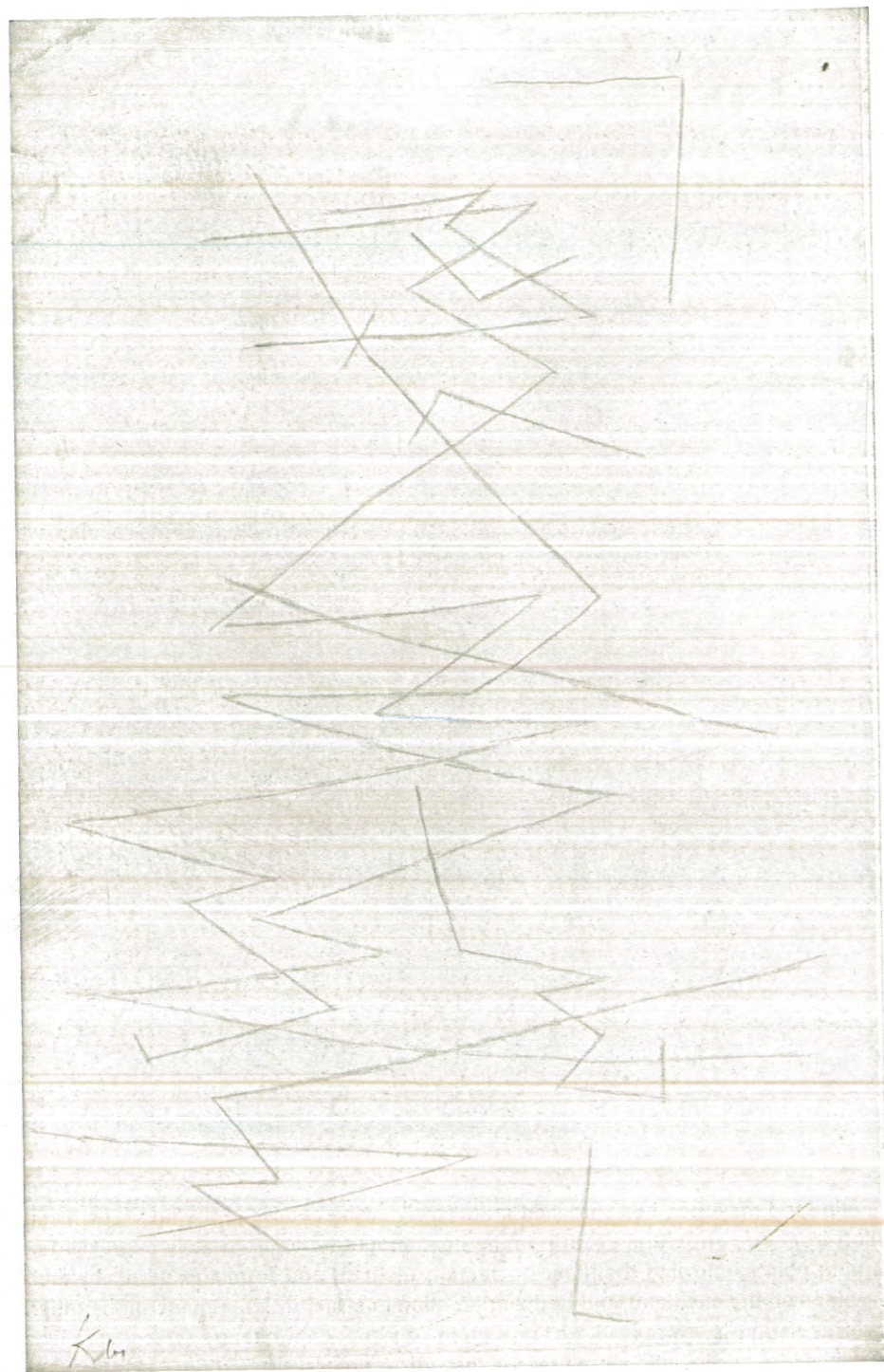
'Changing length of zigzag' paths, direct and indirect.' 40/1-3.



Projected to a plane, loops may be avoided by resort to a zigzag line, purest projection of a spiral, taking above and below into account. In this way the movement of the reading eye remains uninterrupted by leaps and unencumbered by cusps.



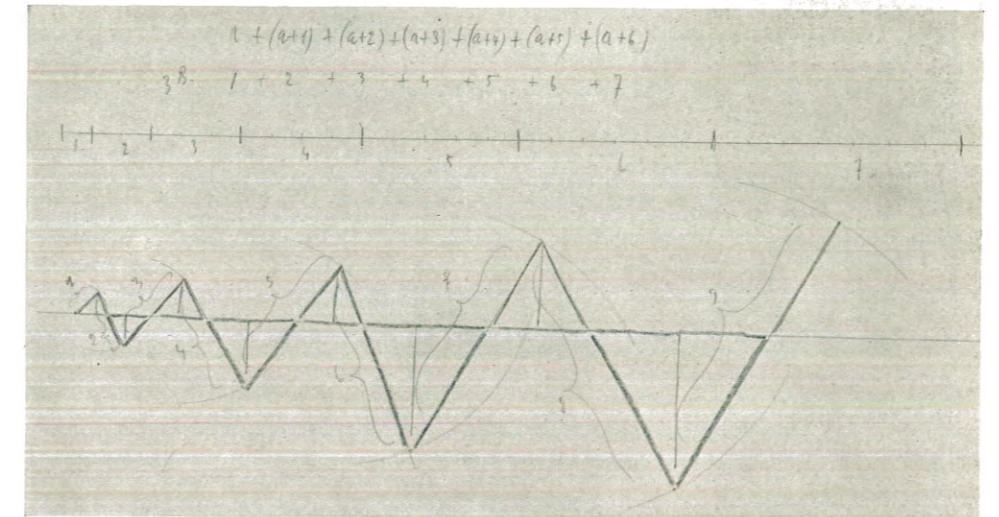
Articulation too may then be expressed more freely in the course of the line. The living evolution from one structural section to the next should be appropriately expressed at the turning points, allowing the limbs to remain distinct, one from the other, by their varying slope on the one hand, and by the alternation in structural treatment on the other. Higher articulation is expressed by the degree of directional change (steeper or less steep), while lower articulation is expressed through structural alternation.



1934/p 20: Piled high.
Pencil, 48·6 × 31·4.

Progression of a zigzag line. 17/71.
From: Progressions 17/57-120.

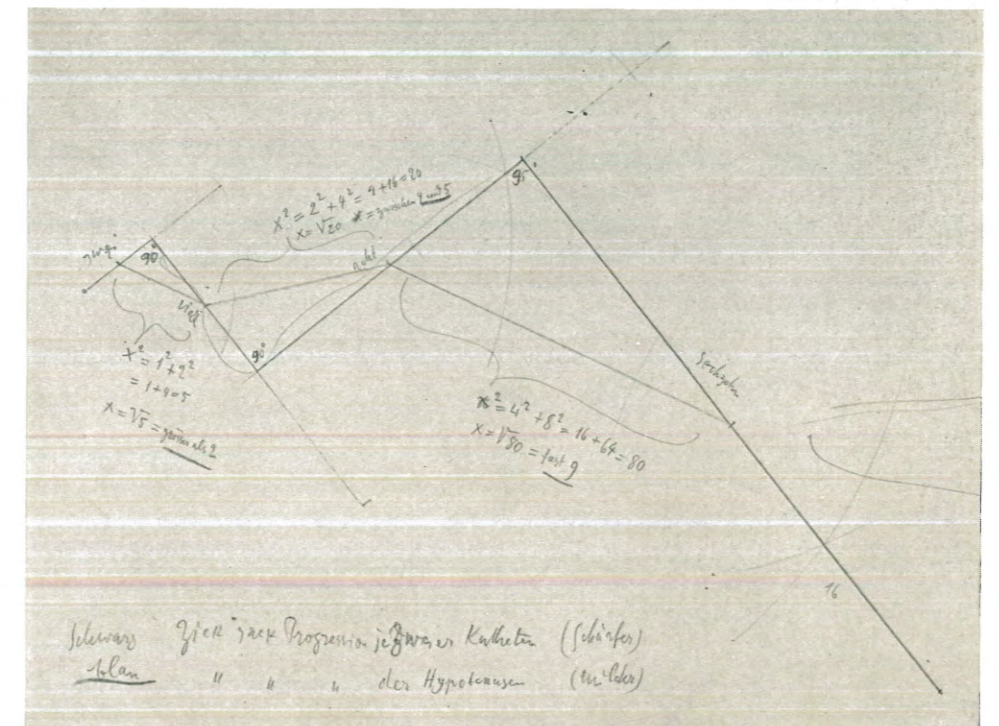
$a + (a+1) + (a+2) + (a+3) + (a+4) + (a+5) + (a+6)$
e.g. $1 + 2 + 3 + 4 + 5 + 6 + 7$

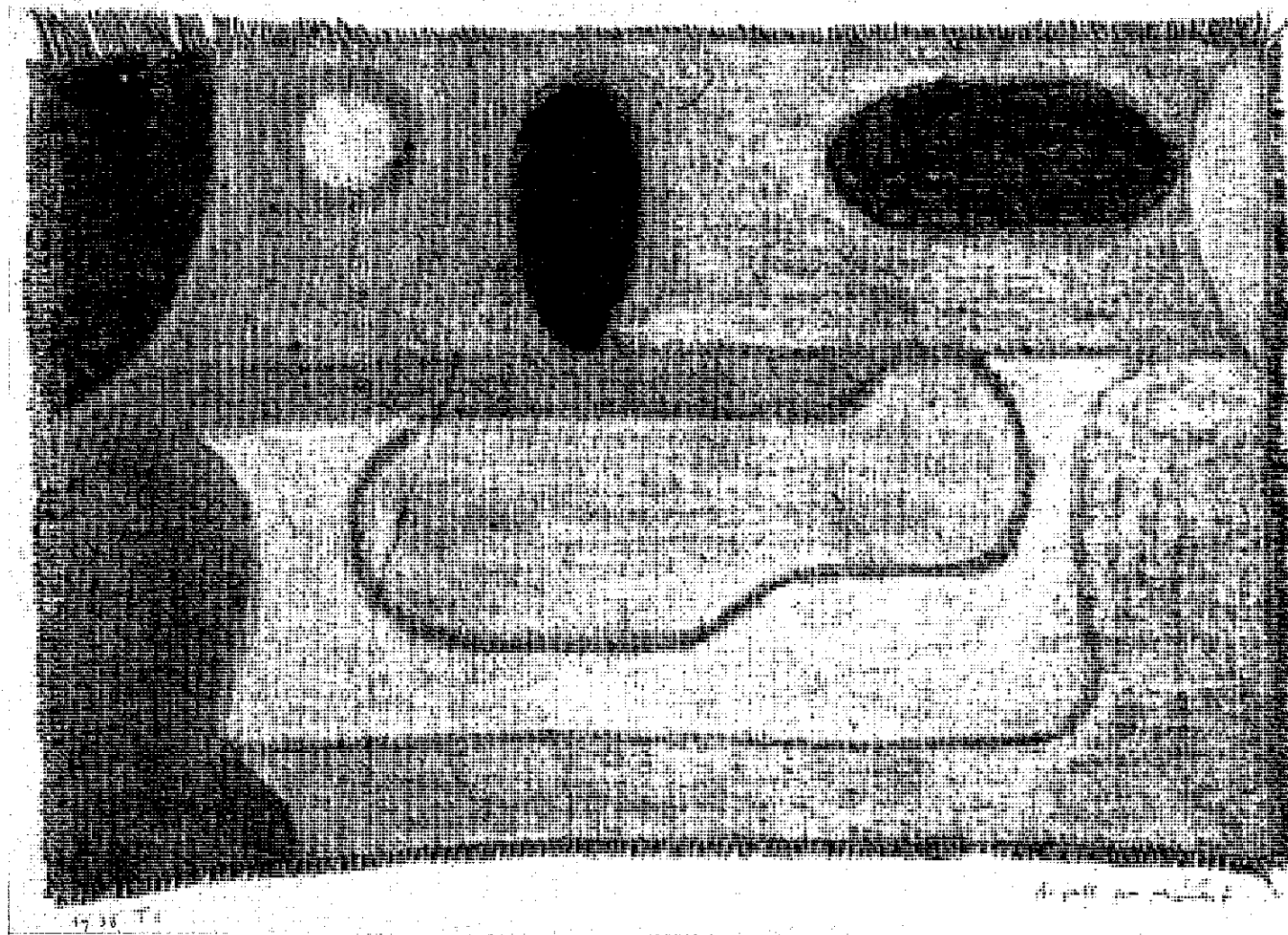


Zigzag progression of the sides of a
series of right-angled triangles (darker
lines)

Zigzag progression of the hypotenuses
(lighter lines)
17/72.

$$\begin{aligned} x^2 &= 1^2 + 2^2 = 1 + 4 = 5 \\ x &= \sqrt{5} && \text{= larger than 2} \\ x^2 &= 2^2 + 4^2 = 4 + 16 = 20 \\ x &= \sqrt{20} && \text{= between 4 and 5} \\ x^2 &= 4^2 + 8^2 = 16 + 64 = 80 \\ x &= \sqrt{80} && \text{= almost 9} \\ x^2 &= 8^2 + 16^2 = 64 + 256 = 320 \\ x &= \sqrt{320} && \text{= almost 18} \end{aligned}$$





1938/T 8: *Command for outflow (outflow of water)*.
Pastel on ungrounded jute. 34.5 x 51.

Cf. Volume 1, p.402.

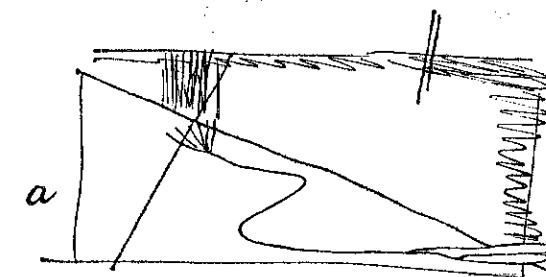
There is still another mode of representing water flow. In nature, after all, the water does not necessarily end in a lake. Neither in a lake nor in the sea, and the springs in the mountains too must be fed from somewhere. Our epic, in other words, has neither beginning nor end.



This can be remedied by inserting a connective. But to connect beginning and end of a finite temporal process is to create a cycle.

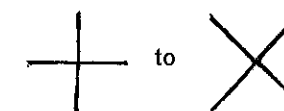


The water comes from the sky in the form of rain and rises up to the sky in the form of vapour. Thus I guide my curve upwards and complete the circle in the clouds.¹



This tempts me into the following two representations:

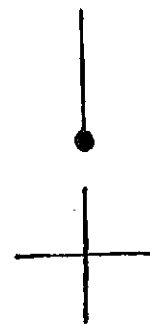
a Oblong as a sign of rotation, turn of the horizontal-vertical symbol:





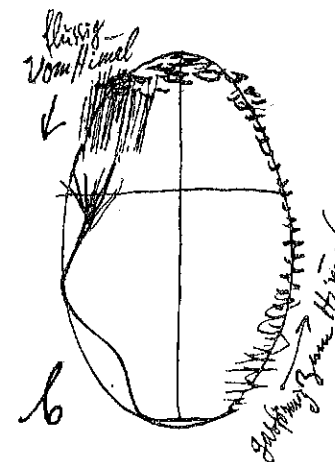
1929/OE 3: Atmospheric group.
Watercolour and pen-and-ink. 30 x 22.5.

1. This symbol:

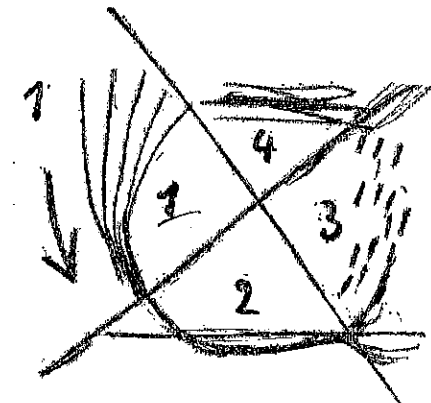


b Circle as sign of distinction between
'above the horizon' and 'below the
horizon' and as an expression of
gravitation, the plumbline
dimension [2].

2. Liquid down from the sky
gaseous up to the sky.

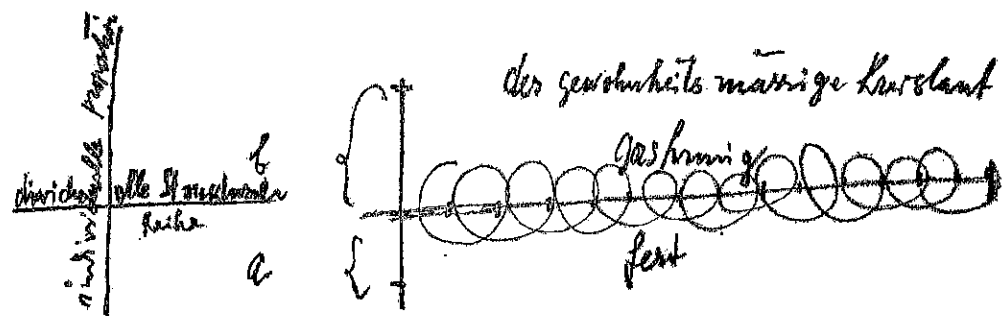


3. The water cycle. IV/188.
'Water descends from the sky as rain
and rises to the sky as vapour, hence
I guide the curve upwards and close
the circle in the clouds.'



oder der Wasser Kreislauf

4. Ordinary circulation. IV/188.
Gaseous and solid
[in continuous representation]

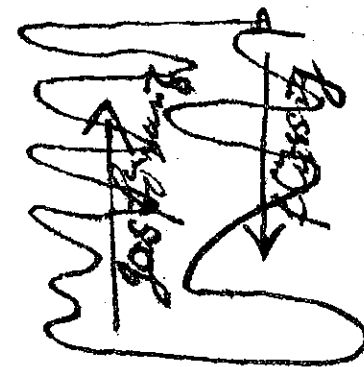




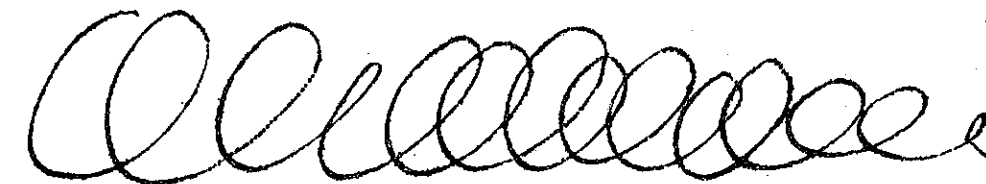
1929/OE 6: *Atmospheric group in motion*.
Watercolour and pen-and-ink. 23 x 31.

¹ Pictorial mechanics or theory of style
unpublished.

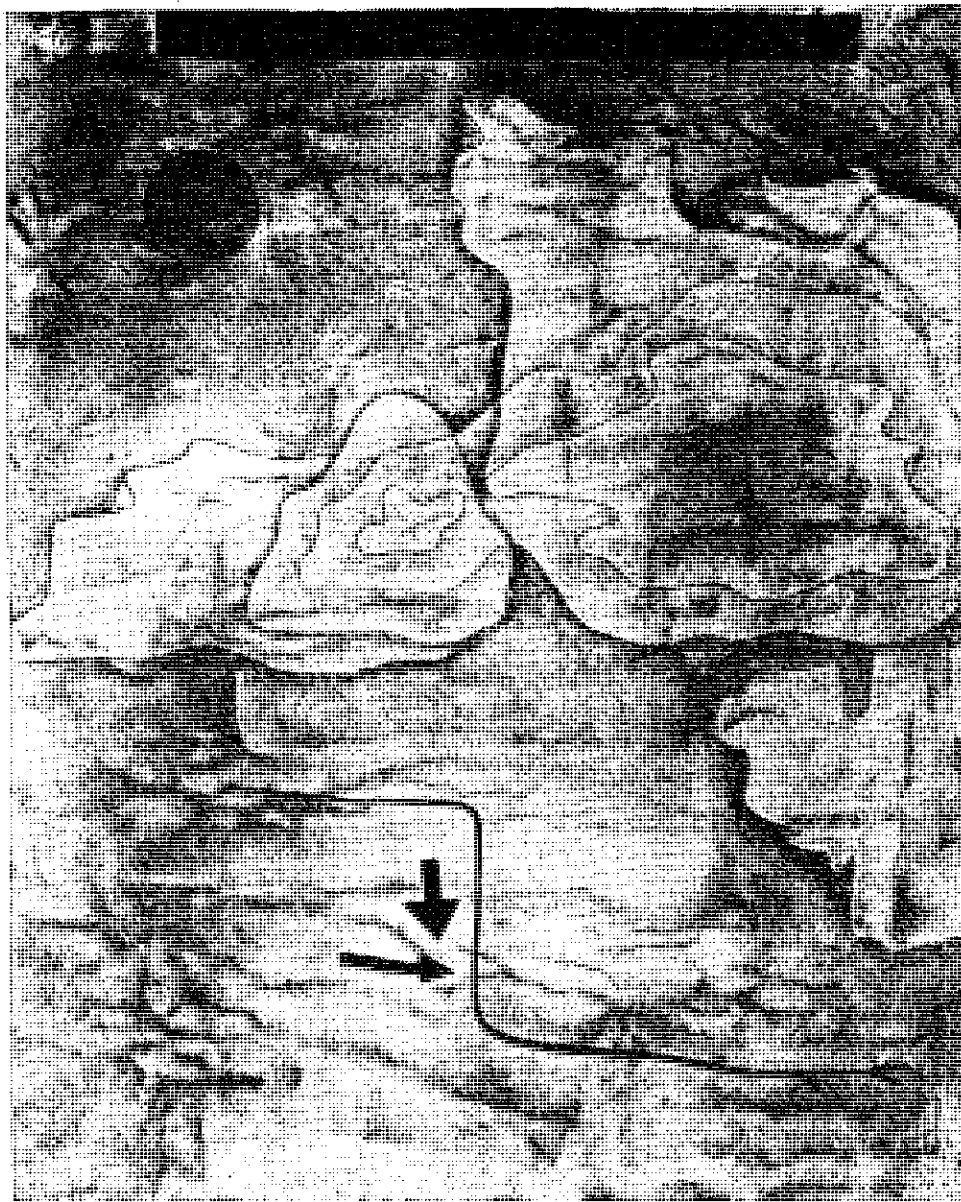
Gaseous
Liquid



You will later on often enough encounter these things in the field of style.¹



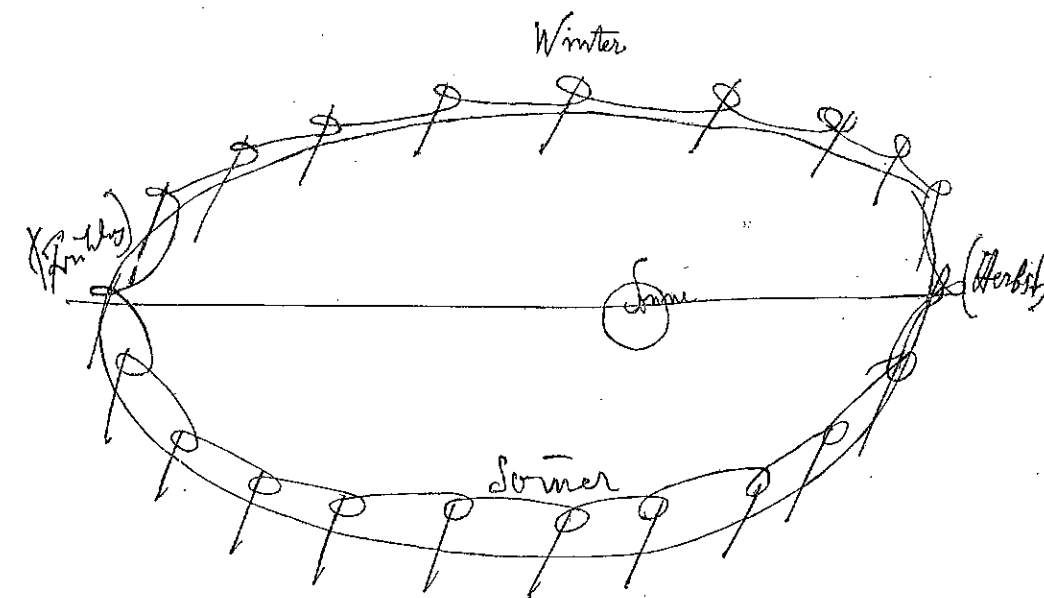
When one ultimately chooses a rather lofty, remote vantage point, saying to oneself that this is the way water moves, year in, year out, betwixt earth and atmosphere, one degrades the higher articulation once again to the structural level. And when one moves to such a distance that it appears microscopic, one then speaks of chemistry, of the magnetic or spiritual, which are not properly known still to be matter. Lastly, a word about the relativity of articulate elements. The greater the rise of the vantage point chosen, the higher and farther away is the viewing eye, and the smaller must the units ultimately appear, even though closer up they still looked quite important, investing the articulations in point with a wholly individual aspect. Not to be overlooked in all this is that in return new individual divisions would emerge in orderly fashion.



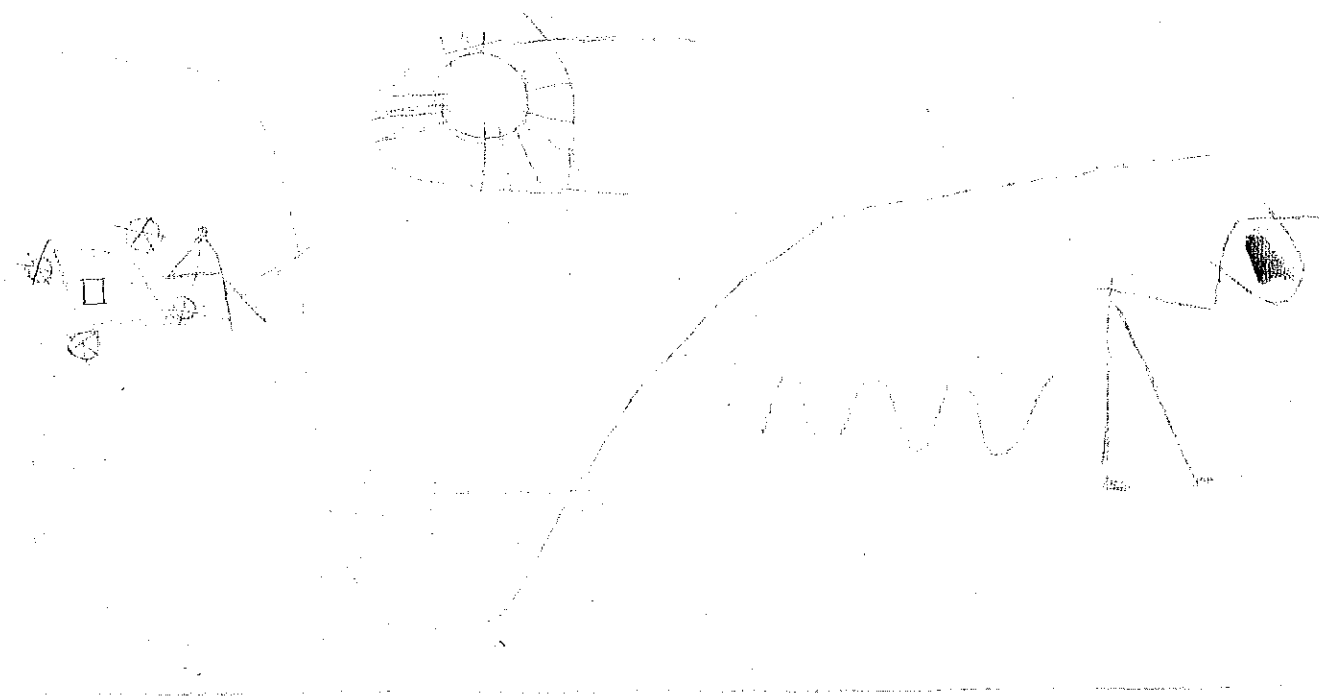
1930/C 4; *Dead cataract*.
Watercolour on enamel-grounded canvas. 54 x 44.

Let us say that we should ultimately view the earth as a round disc, divided into land and water as on a map. At a still greater distance, it would look like a spherical disc with a satellite. In temporal terms, too, one would see the sphere rapidly rotating each day, while the moonlet would circle it at a monthly rate. This would be a macroscopic effect: Localised temporal structures, structural degradation, but also the creation of new individuals, as in the structural crop of the stars, the special aspects of the Milky Way and of the constellations.

Conversely, microscopy leads us into areas where elements hitherto perceived as structures would gain a thoroughly individual aspect, and an atomic-structural rhythm might be discovered from the ultimate molecular traces that were still perceptible.



'Rhythmic sequence of the seasons
spring, summer, autumn and winter.' IV/22a.

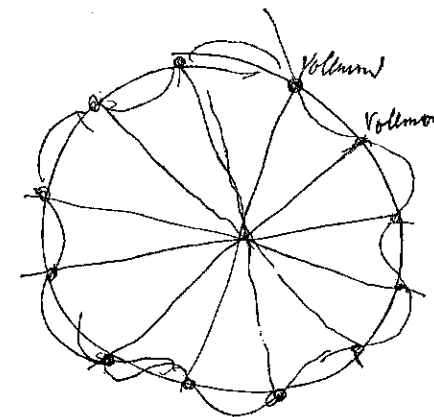


1934/p 8: *The two shores*.
Pencil, 30.9 x 48.6.

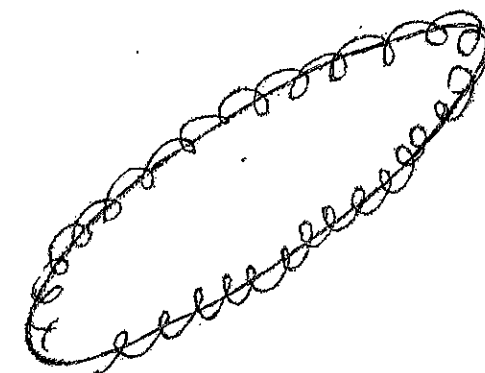
Creation is thus in both directions an infinite, complex, intricate construction. In the course of time, wide areas have opened up on both sides to man's grasp and perception; but man has been unable to transcend certain limits and will never be able to do so. It is a good thing that in the course of time it has been possible to achieve at least a certain elasticity of these limits.

¹ Addition at the bottom of the page: 'Perhaps the proportions of the human body and then a scheme for dividual-individual.' The following is crossed out: 'Human articulation.' Cf. pp.169-175.

The relativity of things characterised by articulation has thus been acknowledged, and this protects us against the danger of lifelessness in our approach. In the creative process, however, this relativity should be eliminated by setting firm limits to the scope for movement.¹



Full moon phase, twelve times a year,
monthly rhythm. IV/22a.



Rhythm based on the premise of a very
long period of time, possibly
eternity. IV/40.

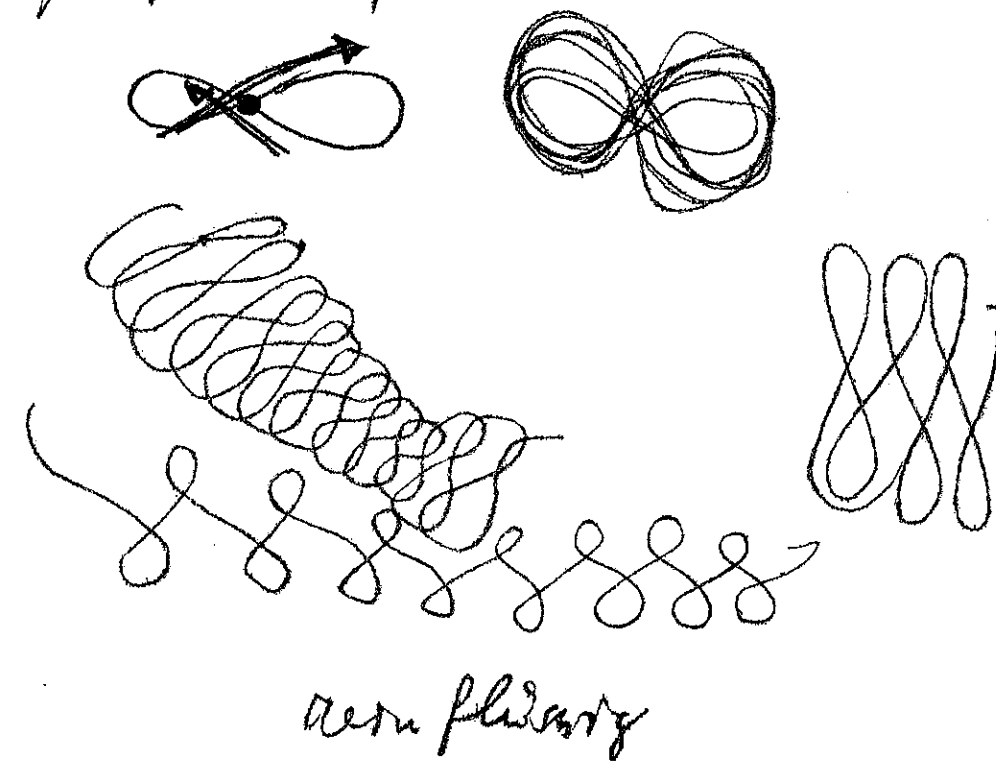


1920/91: *Genie serving a small breakfast.*
(*Angel fulfilling a wish.*)
Lithograph with watercolour, 19.8 x 14.6.

We carry a circulatory system of similar nature within us, without being aware of it. This is the circulation of the blood. Here we are able to view directly a circulation model from nature within its local limits.

The movement of this substance (liquid) does not depend on differences in altitude and phase, but on a central motor, the myocardium, built into us. This motor dictates the movement of the fluid channelled in tubes and tubelets (veins). It does so by means of a rhythmically repeated movement of contraction and relaxation, of tension and relief, which it controls in its alternating repulsive and attractive cycles.

Physiologische Analyse des Blutkreislaufes



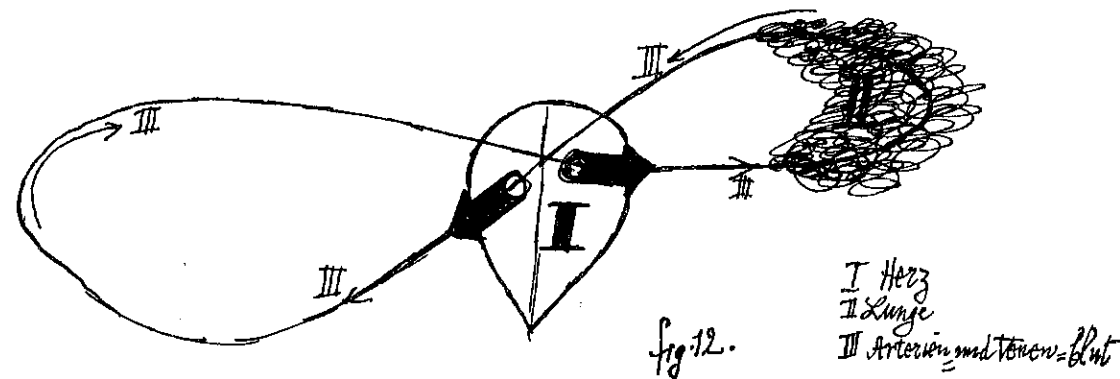
'Physiological analysis of the circulation of the blood. Purely fluid,' IV/41.

Drittes Beispiel: ein Kreislauf.

Unsere Naturstudien auf anatomischem Gebiet könnten auch noch erweitert werden, und von Gebiet der willkürlichen Bewegung auf das Gebiet der unwillkürlichen Bewegung ausgedehnt werden.

Die willkürliche Bewegung erfolgt wie der Name sagt auf Befehl und nach Bedarf der Instanz die wir laudläufig Gehirn nennen. Sie erstreckt sich kaum je auf den gesamten Bewegungsapparat, sondern bringt nur partielle Koppelungen eines Teiles zur Aktion. Dieser Teil der animalischen Bewegungsmaschine ist der Ermüdung unterworfen, Ermüdung, Schläffheit und Aussetzen zu seiner Zeit (im Schlaf) ist hier Norm.

Die unwillkürlichen Bewegungen des andern Teils der Maschine: des Herzens, der Lunge, der Ernährung, der Ausscheidung, diese unwillkürlichen Bewegung sind innerhalb der Lebenszeit unendlich. Mit Ermüdung, Schläffheit und Aussetzen sind hier wie hier nicht gerechnet.



I Das Herz pumpt (aktiv)

II Das Blut fließt durch die Lungen, wird bewegt (passiv)

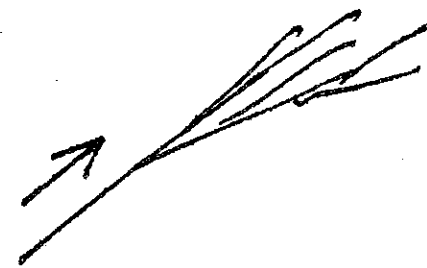
III fließt passiv wieder dem Herzen zu

I Das Herz pumpt wieder (aktiv)

III das Blut wird von neuem in Bewegung gesetzt und kehrt zu der Stelle des Herzens zurück, von wo der Kreislauf ausging (passiv)

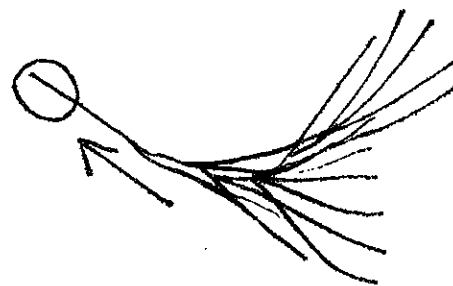
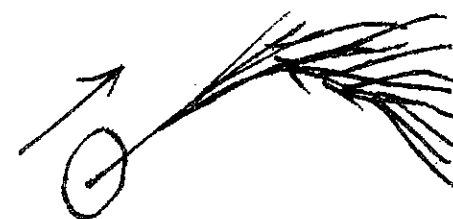
Manuscript page from: 'Towards a theory of form production.' Appropriately related choice, form and emphasis of organs. A circulatory system. Cf. Volume 1, pp. 354-355.

This motor, in other words, is an action centre, the epitome of moving activity. It moves, while the blood, by contrast, is moved, remaining passive in terms of movement. This contrast gives rise to relations of articulation that are novel in kind.



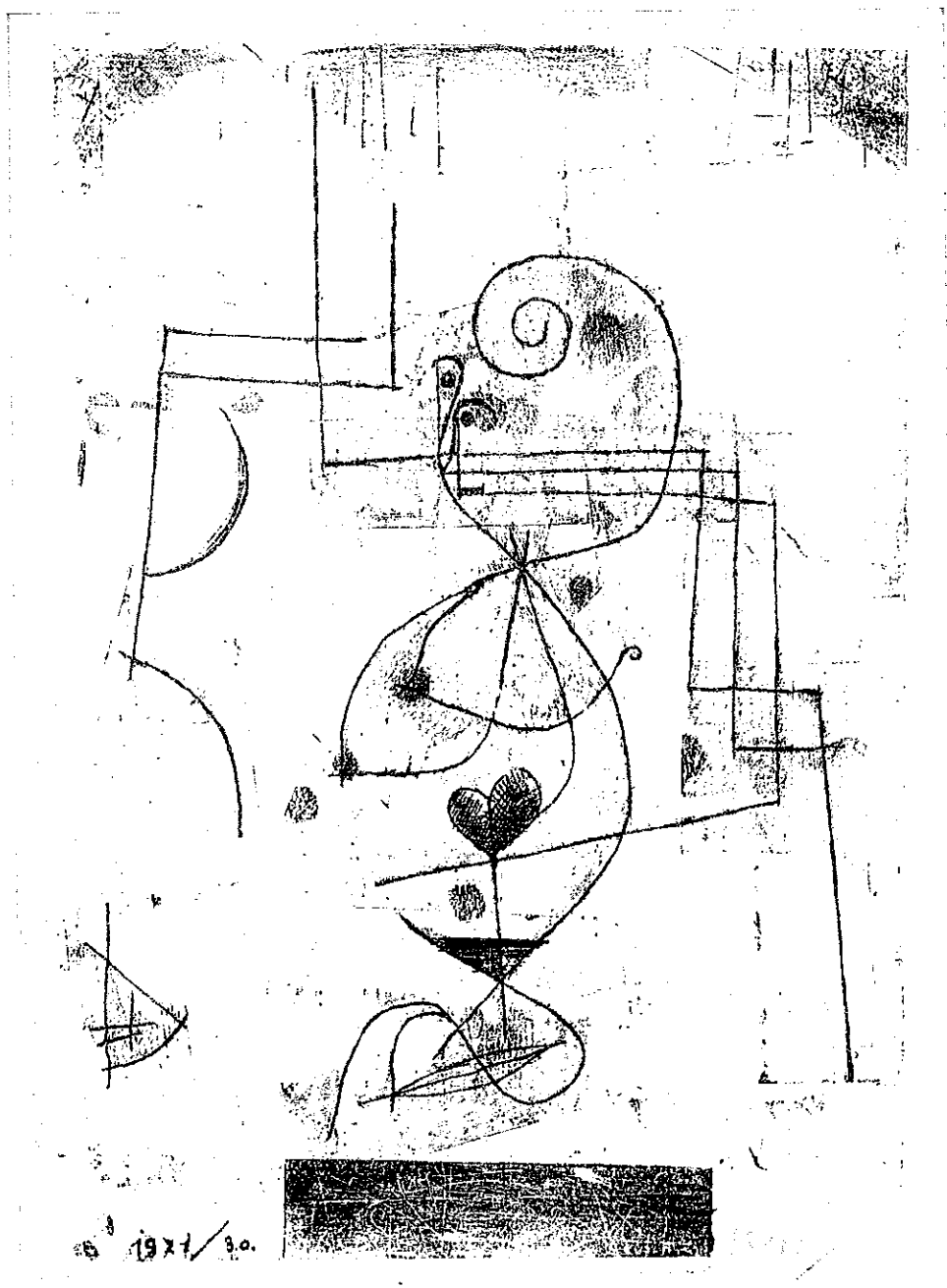
Blood is propelled in such a way as to pervade the entire organism, to flow through the whole body.

To this end, more and more side streams branch off, until we can perceive a complete network of such branchings, providing thorough perfusion. In the very finest branchings, movement proceeds of its own accord, as always in capillary tubes.



A state is attained in which movement is mediated. In addition, blood deteriorates by surrendering its useful components.

In other words, blood of good quality is propelled and after losing that quality is collected and returned to the heart.

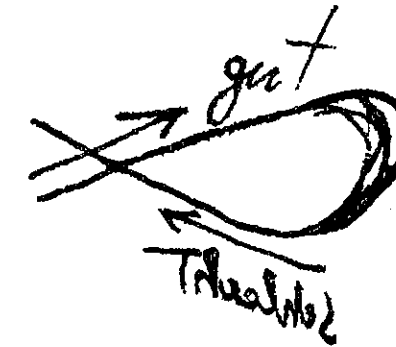


1921/30: *Queen of hearts*.
Lithograph. 25.5 x 17.5.

Good

Bad¹

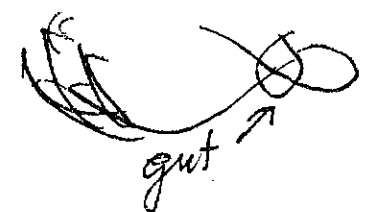
This is always done on command of this motor centre.



No part of the volume has been lost, only the good quality.
In place of one simple cycle, this requires a further circulatory system.

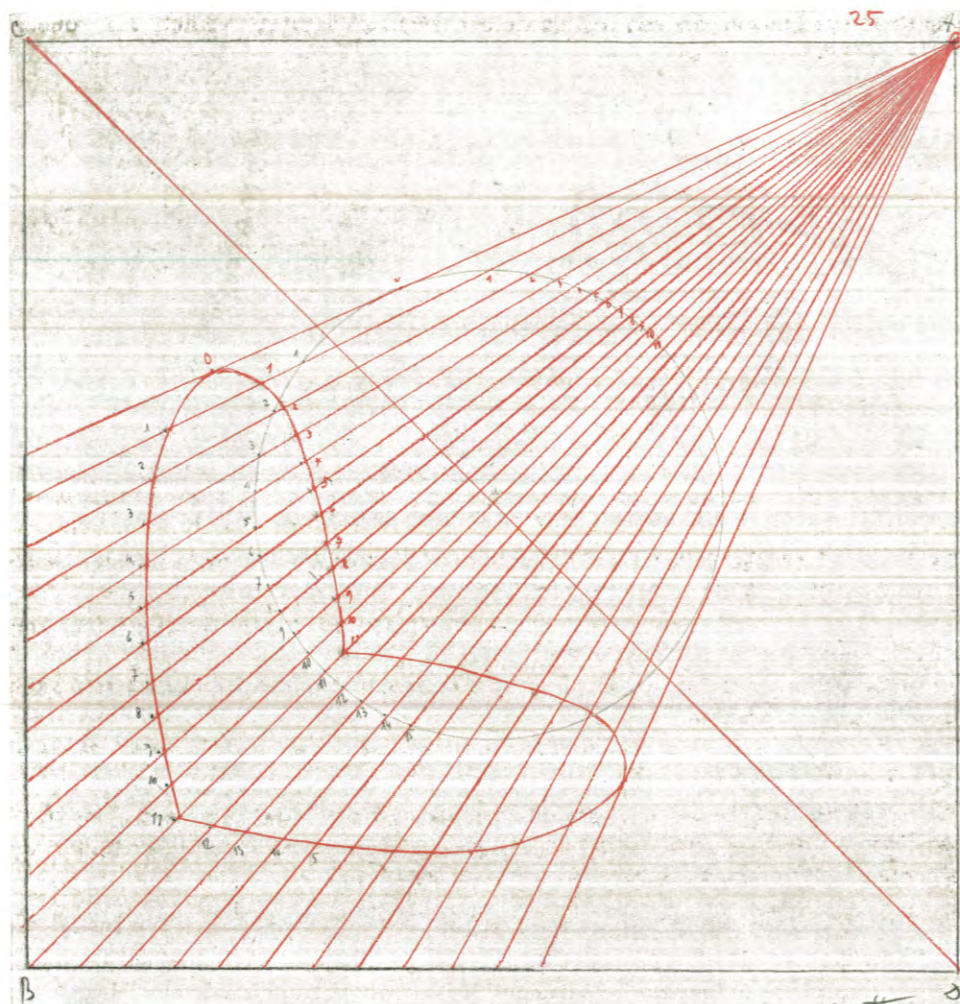


And now the bad blood is propelled into a new direction, to reach another place and activity. It reaches the lungs, where it is purified and where another intermediate stage is attained, in the sense of differential movement.



Ultimately it is collected for a second time, so that the heart is able to bring it back effectively.

¹ In mirror writing.



Mediating forms on a purely elemental-schematic basis.

Precisely mediating results between primary forms. 44/1-66.

Example of forming 44/33:

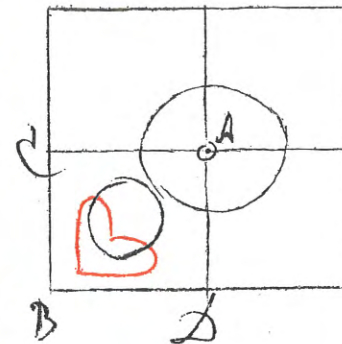
Ray control is eccentrically located.

Mediating forms with eccentric activity.

Ray centre displaced into a corner.

In the square A B C D:

The heart form as mediating form between circle and rectangle (irradiated from the opposing corner point A).



Norm: Central irradiation.

Hence, in the above case, radiation from a corner point follows the composite mode.

Or radiation could take place from all corners.



The form described in this way is a figure eight, a dual circulatory system or a double-circle connected by a cross.



At the point of the crossover, the central organ of movement finds its appropriate place, whence it may control both parts of the circulation. On the opposite sides, processes of a special nature take place, on the right the surrender of positive qualities, the blood volume being subdivided into smaller and smaller parts, for proper exploitation.

Following such exploitation, it is collected once again for the purpose of the swiftest possible subjugation by the central organ.

On the left is the scene of reception of positive quality, to which end the blood must once again be spread out widely.

Thus does nature act and shape, on the basis of her need of movement, both in terms of locale and content.

I have kept my discourse quite elementary, limiting myself to the merest hints. This afternoon, when you will be asked to represent such a circulatory system, you will have to go rather beyond the schema shown here on the blackboard.

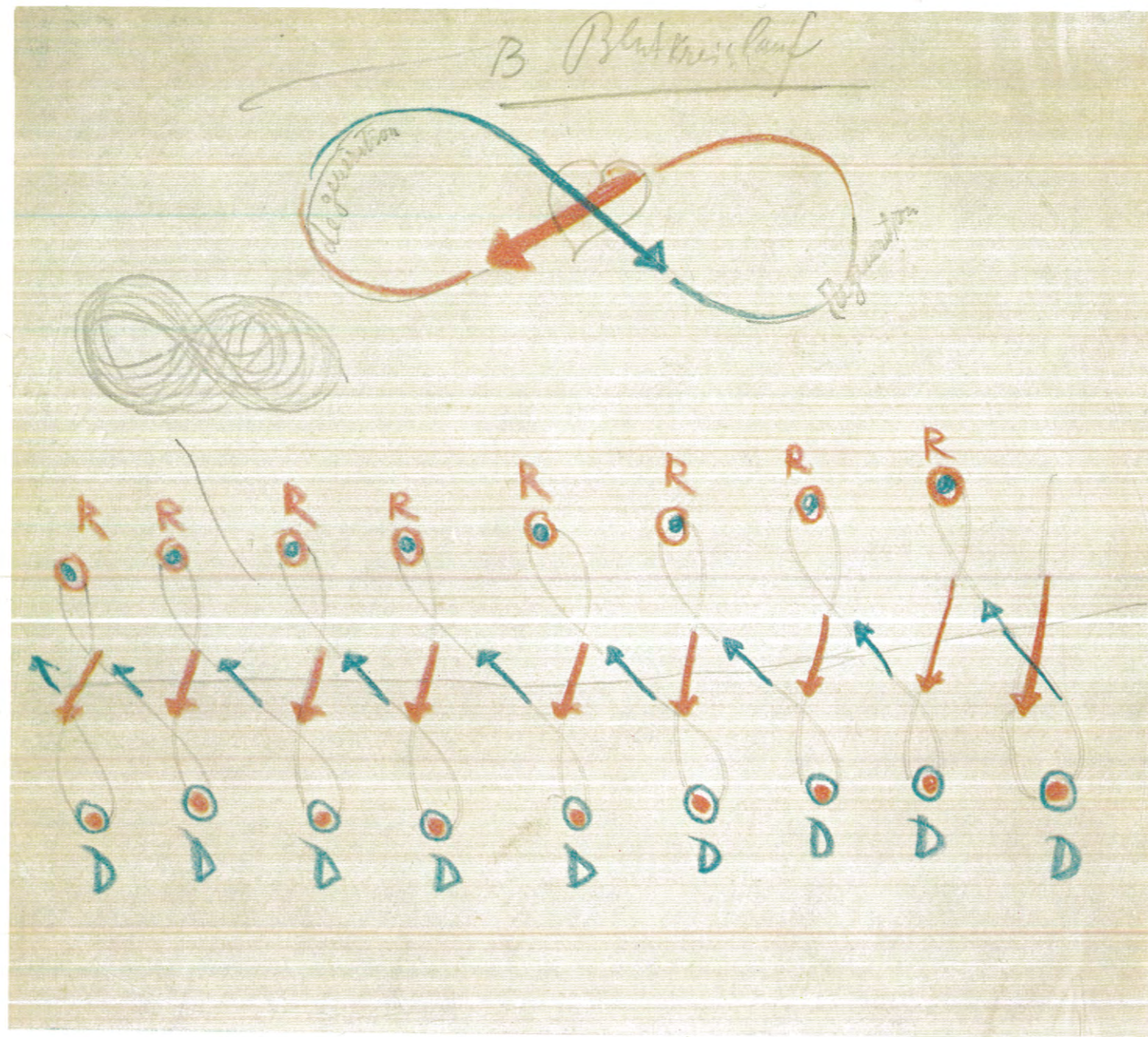
A composite event may be brought alive more easily by composite media. In a pinch, one might represent the

good blood by a cross like this



and the bad like this.



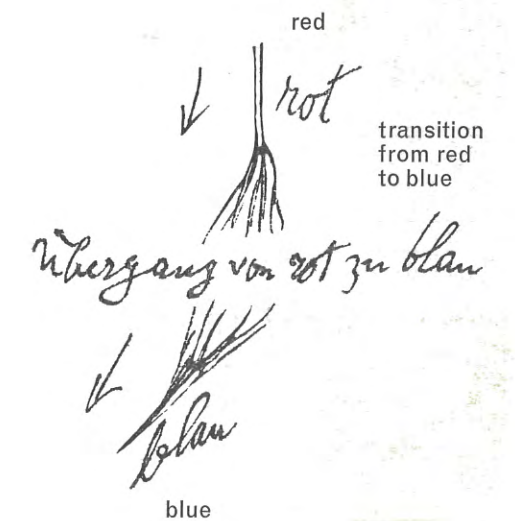


Circulation of the blood. IV/23b.

Top: D=Degeneration, R=Regeneration.
Bottom: R=Regeneration, D=Degeneration.
(in continuous representation).

What does this representation denote?

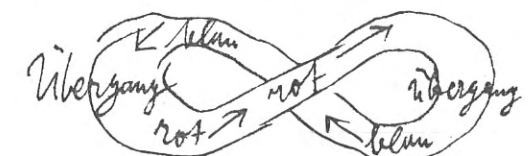
By using two colours, e.g. by colour representation, the thing could be done much more graphically. And what happens on the two wings, to the left and right, almost certainly appertains to the realm of colour.



A playful game of spreading out and foregathering again, without deeper meaning. But when it is resolved in colour, the triviality is at once remedied.

Well, we know the purpose of the spreading out. To subject it to alterations, to utilise the red phase.

When the colour is continued into the centre, the cross gains meaning.





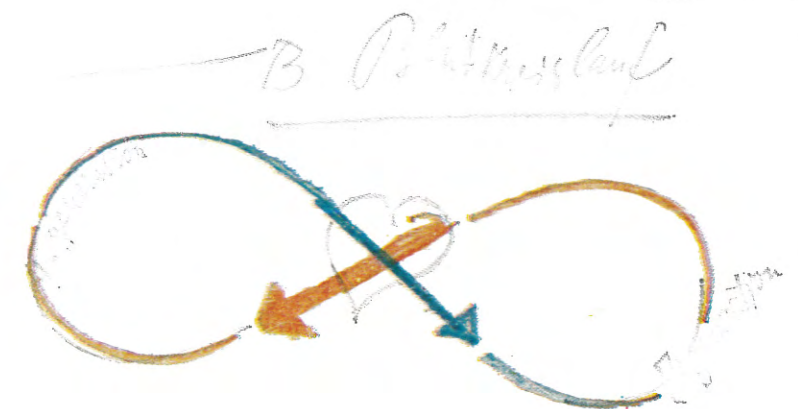
Exercise for the afternoon: Simple higher articulation combined with structure.

1937/qu 1: *Hibernation*.
Mixed media and watercolour. 31 x 49.

These qualitative or coloured representations would be opposed by the motor centre, demanding other means. The activity of a muscle consists of the alternation of contraction and relaxation, expansion and concentration.

Degeneration

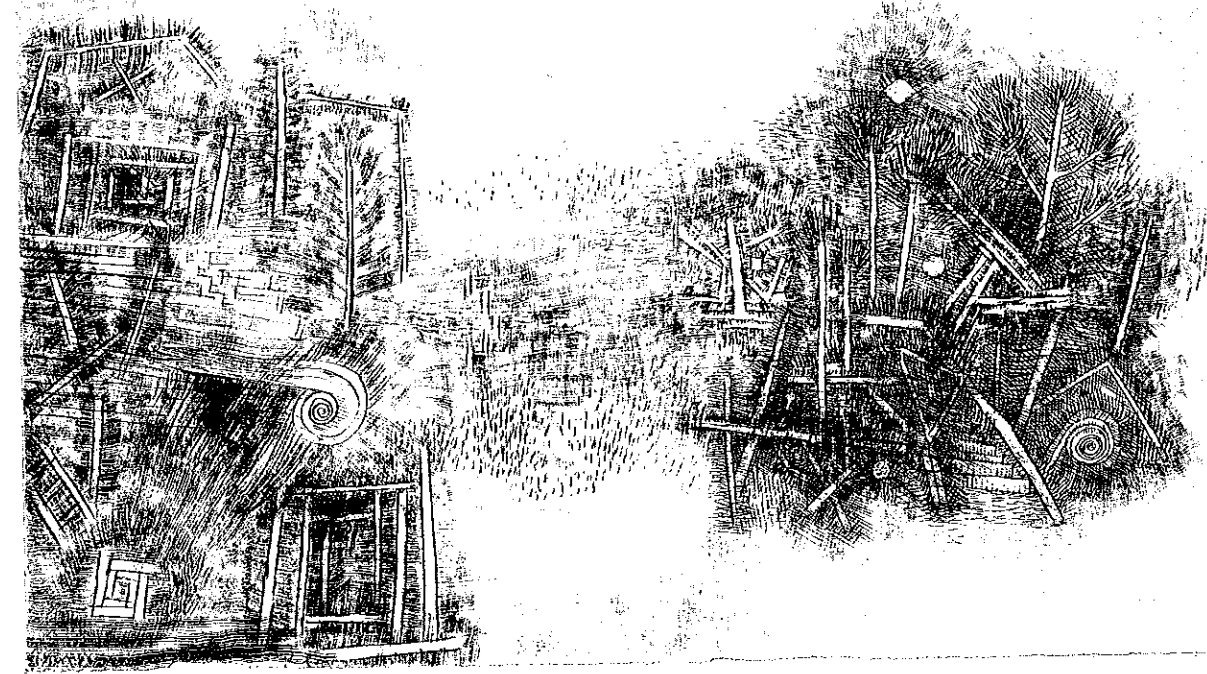
Regeneration



This belongs in the realm of weight, these are movements from light to dark. One colour does not yet suggest a colour problem, but a trend like red, redder, very red suggests that this is an analogue of black-and-white tonality.

(I shall discuss proportion, measure, weight, quality on another occasion.)¹

¹ Measure, weight, quality = line, tonality, colour.
Cf. p.299.



1926/27: *Water park*.
Watercolour. 25.5 x 37.

Approach
Essence
Semblance.
Representation according to essence
and semblance¹

Check-list of items bearing on 'nature study' and constructive approaches to composition, compiled on the body of the theoretical and instructional papers. See also the sections: 'Objects in nature investigated in regard to their inner being', Volume 1, p.63; 'Ways of Nature Study', Volume 1, p.63; 'Exact experiments in the realm of art', Volume 1, p.69.

Ways of nature study; constructive approaches to composition

Energies of form-creating nature
Objects in nature investigated in regard to their inner being
Natural growth and progressive layer sequence
Stratification applied genetically
Temporally growing
Centrally irradiated growth
One- and two-dimensional square movement
Synthesis of cross-sectional and longitudinal plant growth
Dimension and weight and their movement
Approach, essence, semblance
Synthesis of figuration and appearance

From a single source (seed) paths spread out, with a display of influences (from within or without). 8/10.

Essential flower data (the process of blooming). Approach to an open cross-section of a flower. 45/76.

The means as such, arranged in a state of rest. Even here an interior.

Objects in nature investigated in regard to their inner being (the concept of *ab ovo*). 8/4.

Natural growth. 17/118.

Natural growth and progressive layer sequence. 17/117.

Stratification applied genetically. Temporal sequence. 16/148.

Temporally growing. (Leads) 21/23.

Centrally irradiated growth. 39/1.

Emergent growth, productive line growth, one- and two-dimensional.

Multidimensional movement on a square base or differential movement as 'distance and angular' movement.

Longitudinal or male movement, cross-sectional or female movement. 39/116.

Synthesis of cross-sectional and longitudinal plant growth. 39/50a, 39/51.

One- and two-dimensional square movement on a pictorial base. 39/115.

Movement: two-dimensional and double-directed progressions. Extension and contraction. 17/104a.

Measure and weight and their movement:

Expansion-impression, rarefaction-condensation. 42/2.

Movement of the square from normal to abnormal. 17/48.

Motion sequence (genetic) from within to without. Series of squares represented spatially. 17/69.

Augmentation modes: shift, rotation, reflection. An example of complementary reversal. 60/71.

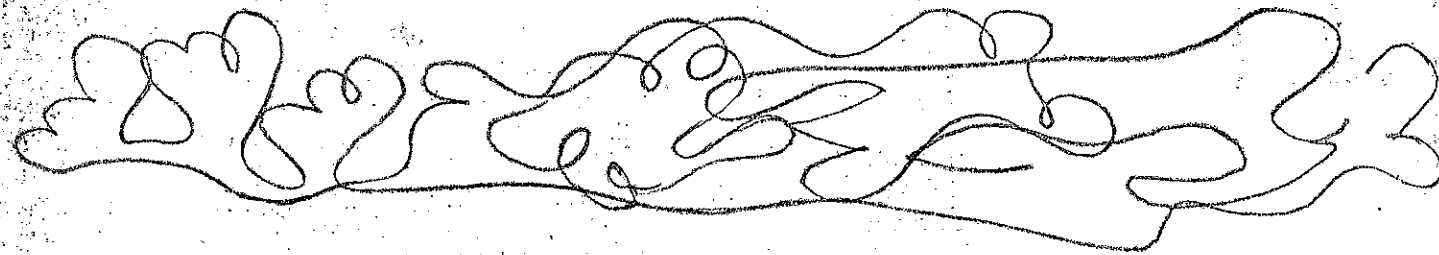
Approach, essence, semblance.

Essence contrasted with semblance.

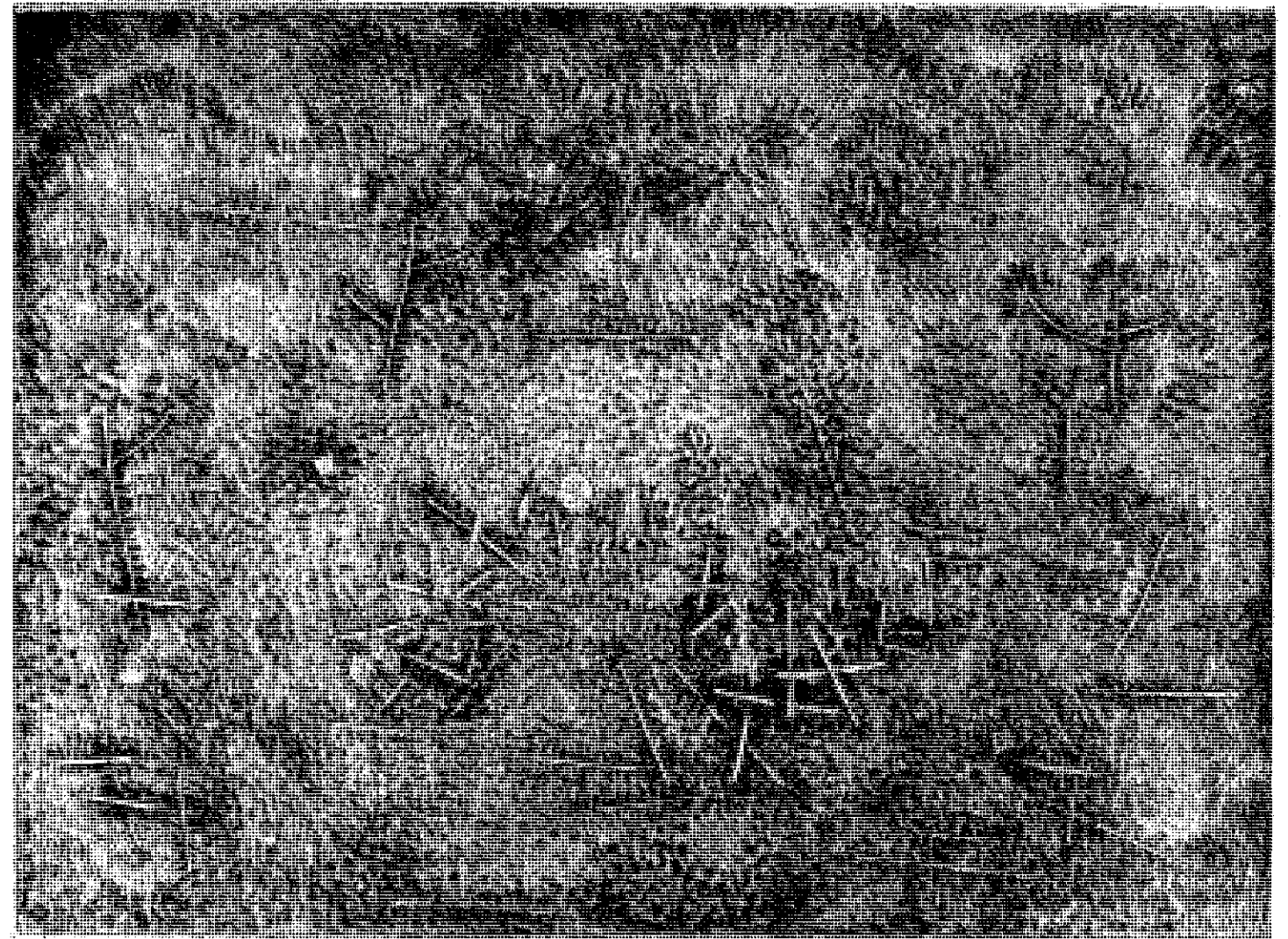
Dynamic forces. Concepts: dynamic form-limiting form.

Interior-exterior. 8/7.

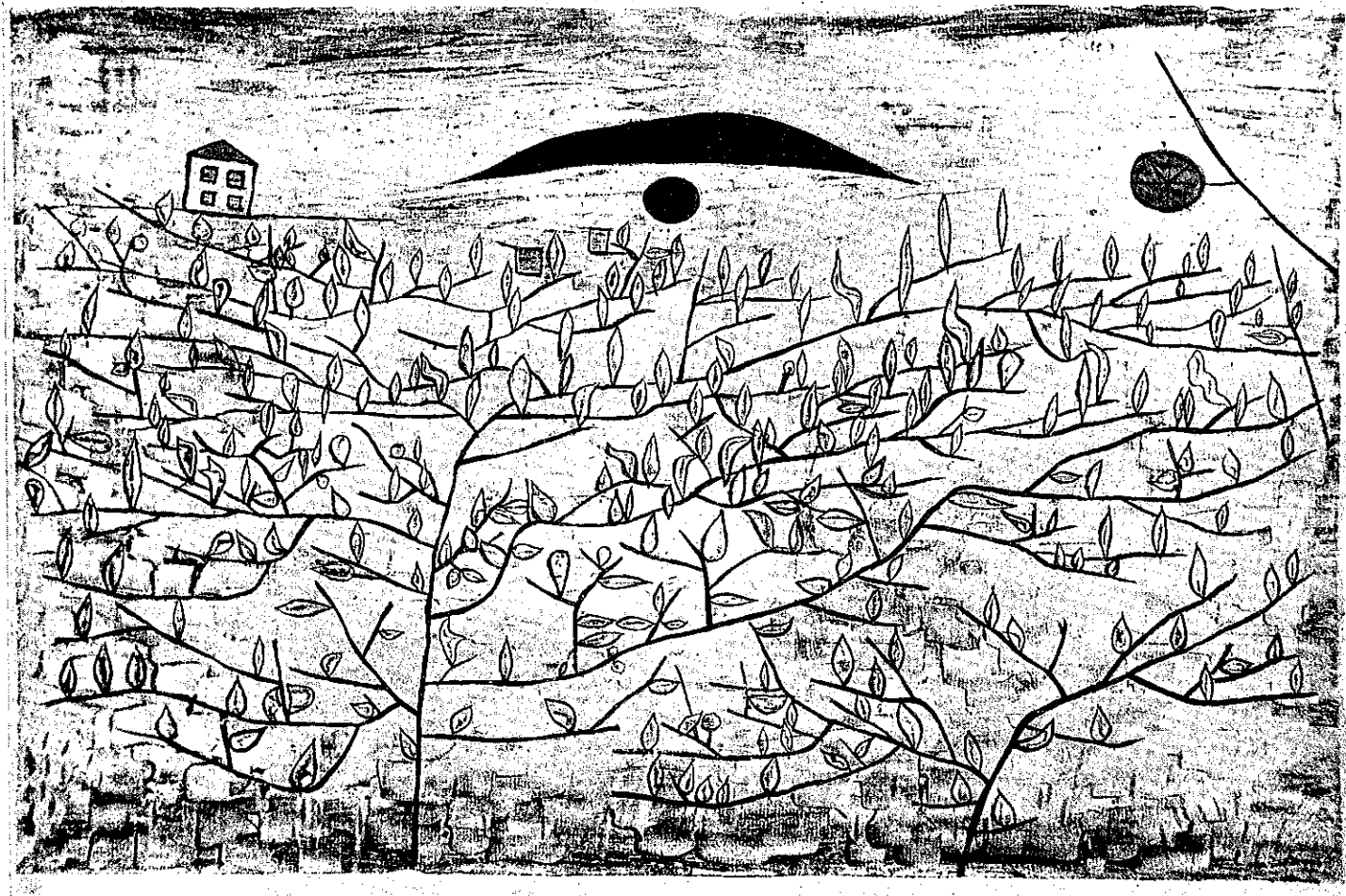
Representation by essence and by appearance.



Drawing from the Theory of form and figuration. 9/61a.



1926/B 8: *Forest clearing*.
Watercolour. 36.7 x 51.2.



1934/T 15: *Landscape with accents.*
Watercolour and coloured paste on paper. 31 x 48.1.



By way of extension, cf.

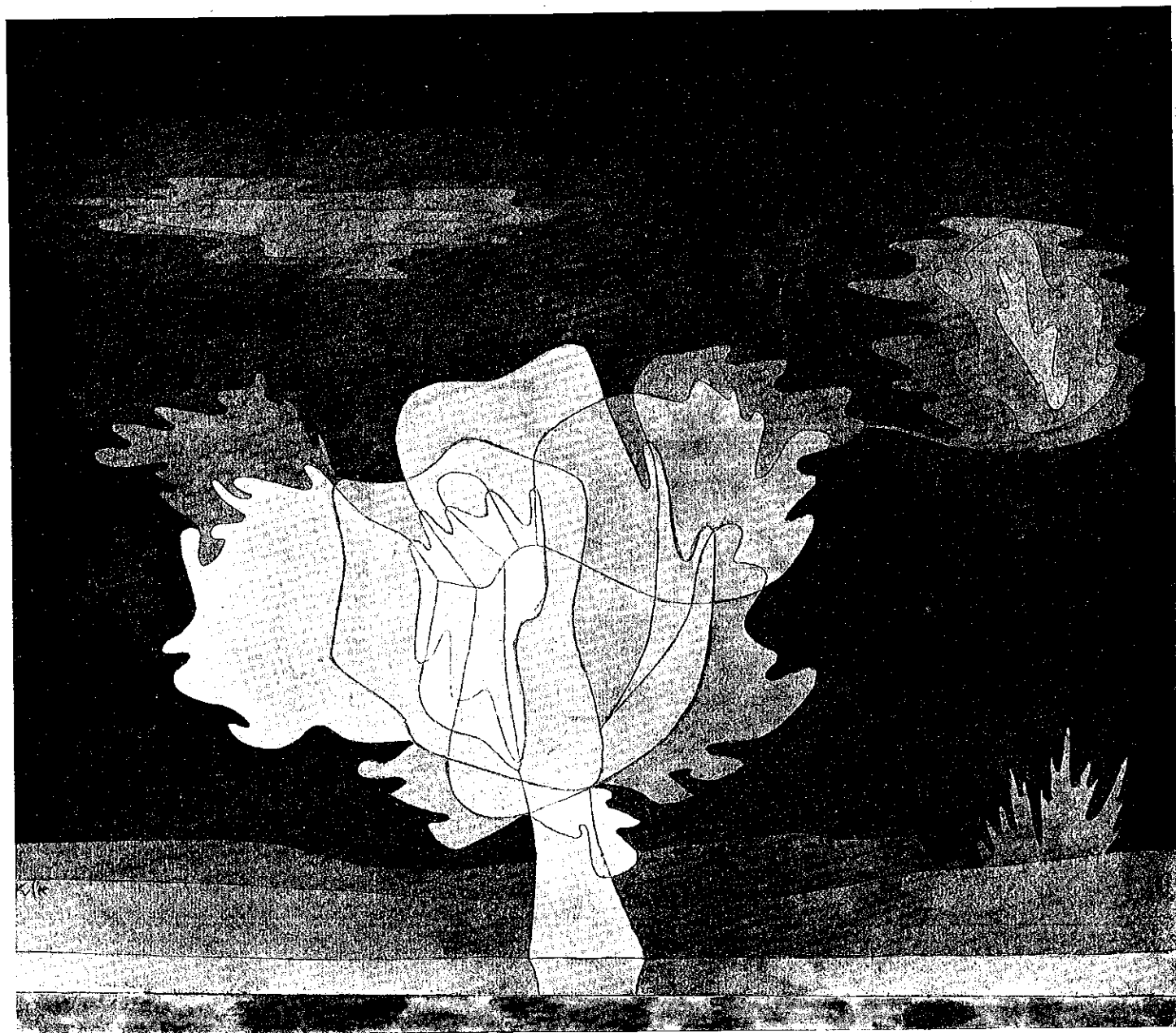
- I. Active organ: stamens and pollen.
 - II. Middle organ: the insects as intermediaries.
 - III. Passive organ: the fertilised seeds.
- Volume 1, p.352.

The figuration example 8/10 is taken from a draft for the Weimar preliminary course (winter 1924/25).
Cf. note in appendix.

Seed. From a single source (a seed) paths spread out, with a display of influences (from within and without) I-IV.

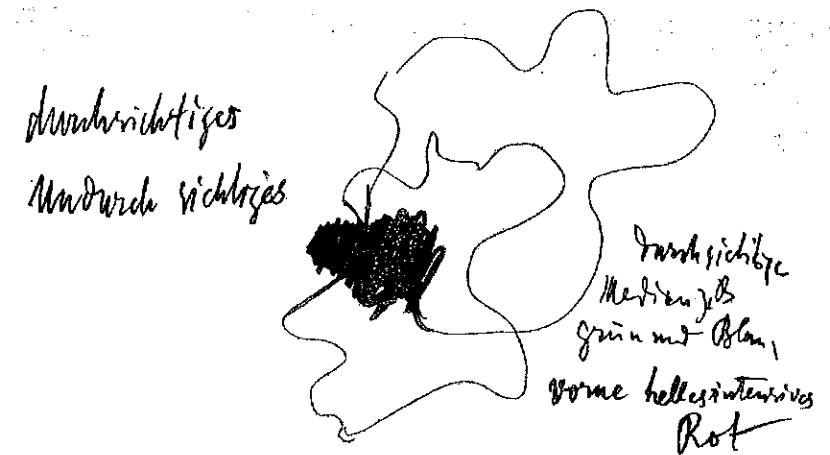
The point stirs into motion and an essential structure grows, resting on figuration. The end is but part of the essence (the semblance). The true essential figure is a synthesis of figuration and semblance. 8/10.

Preliminary course, Weimar, winter 1924/25.



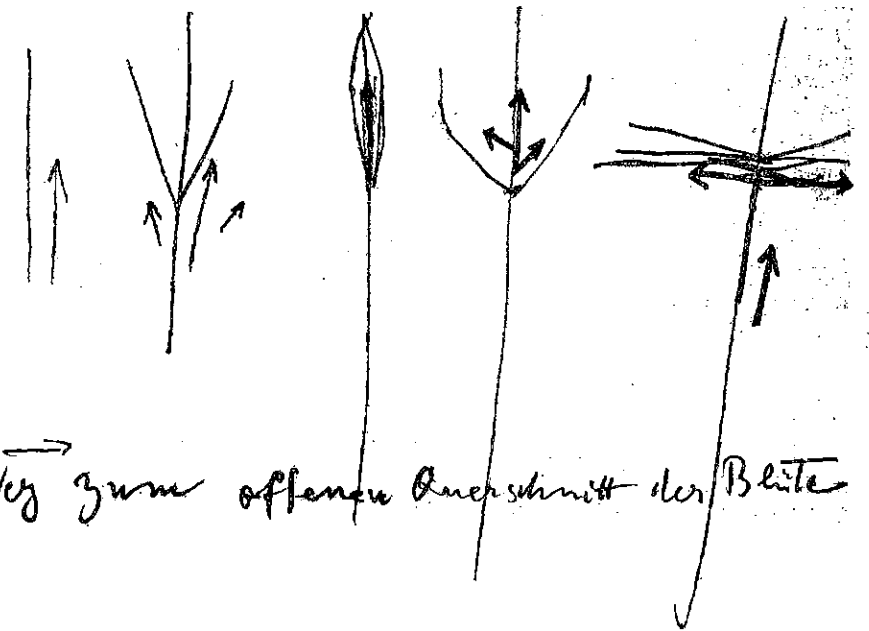
1929/H 19: *Before the snow.*
Watercolour, 33.5 x 39.

Transparency–opaqueness.
Transparent media,
e.g. green and blue.
To the fore, bright intensive red.
Formation example 60/13.



Essential flower data (the process of blooming).
Approach to an open cross-section of a flower.

Itself a living cross-section, a blossom opens up natural insight into the cross-sectional plane. The special solemnity of the generative process (release of positive–negative tension, synthesis of dual components) finds special expression in colour specificity. 45/76.

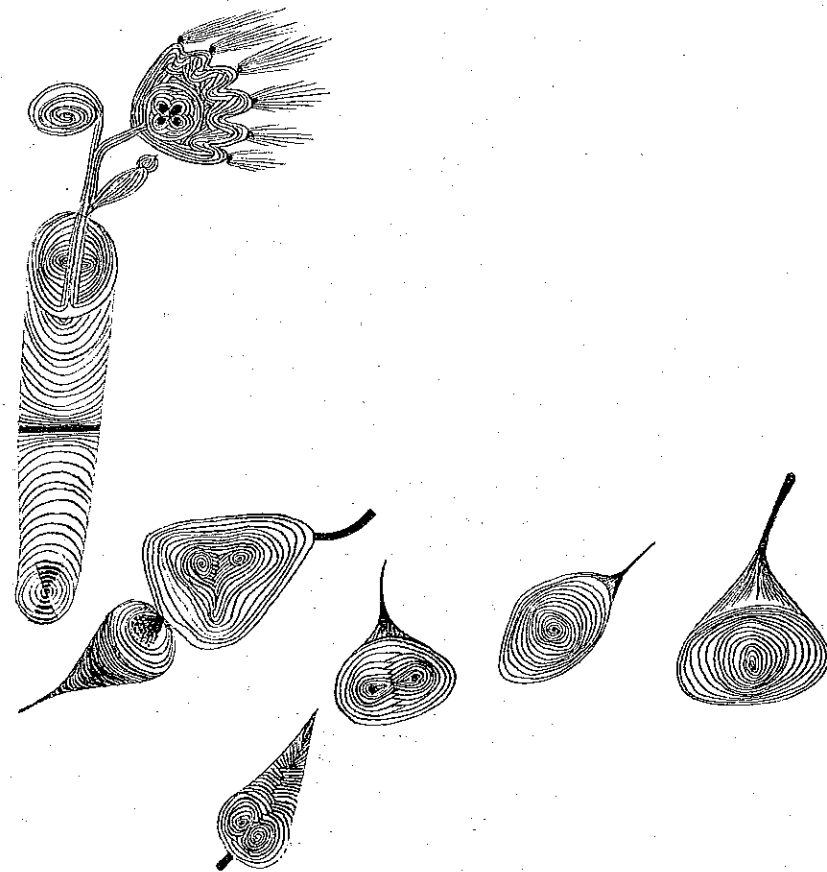


Der Weg zum offenen Querschnitt der Blüte

1929/H 19: *Before the snow.*
Watercolour:

'How to achieve representation, e.g. emphasis on the processes leading to form. Representation by essence, e.g. permeation (contrast: by appearance). Or representation of the objective-spatial aspect. – True essential figure is a synthesis of figuration and semblance.'

An organism is examined with regard to its inner being, its dynamic character being emphasised. Interior and exterior interpenetrate and are seen in cross-section (core layers, interior–exterior). Destructive forces push from the outside in. The inner being is transparent and accented in colour ('progressive in reference to life, regressive in reference to death').

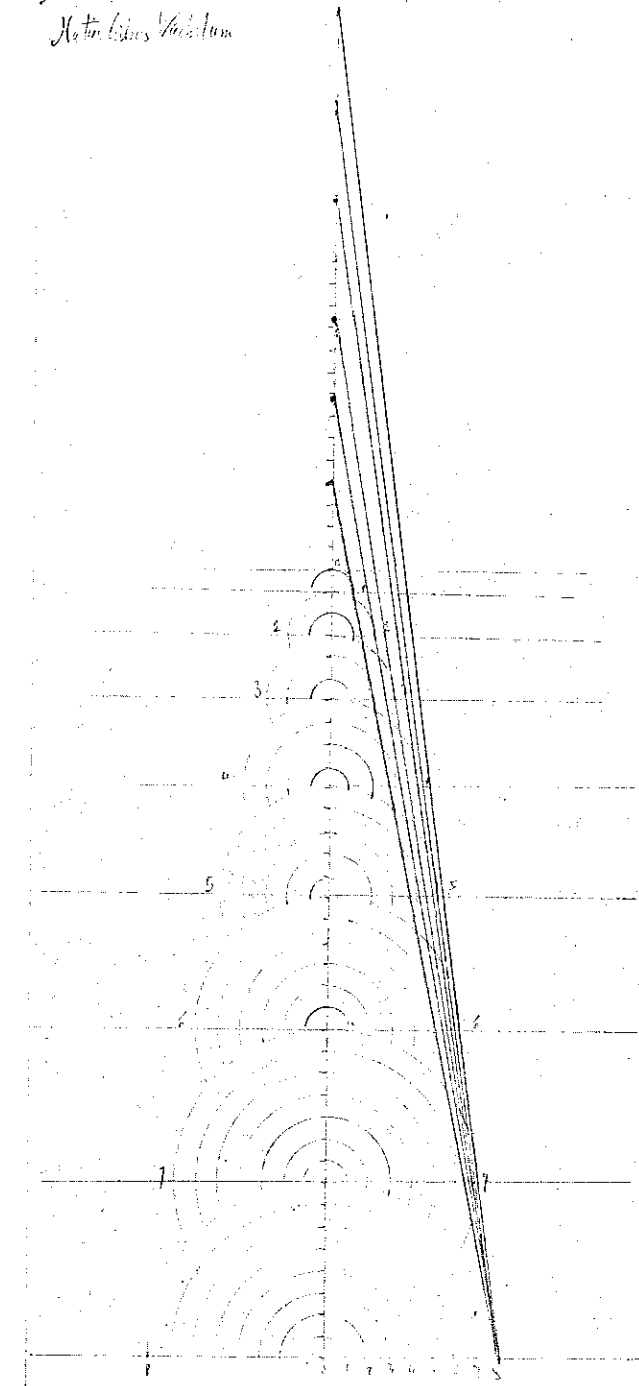


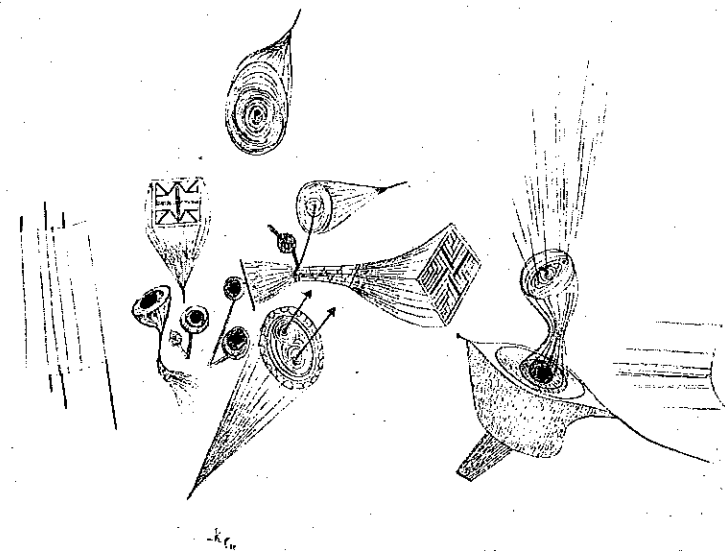
K₁

- 1 The means as such, arranged in a state of rest. Even here an interior.
- 2 Objects in nature investigated in regard to their inner being (the concept of *ab ovo*).
- 3 The basic concept of growth, tension or charge.
- 3a How form comes into being, ways to form, even to basic forms. Then to combinations of the basic forms (together) against one another. Special case: The basic forms in a state of rest, arranged by their inner being (together or within one another).
- 4 Relation of form to space (ground area). Core, interior space, objective shell, exterior space.

Cf. cross-sectional and longitudinal plant growth,
p.135.

Notulites Vachellum



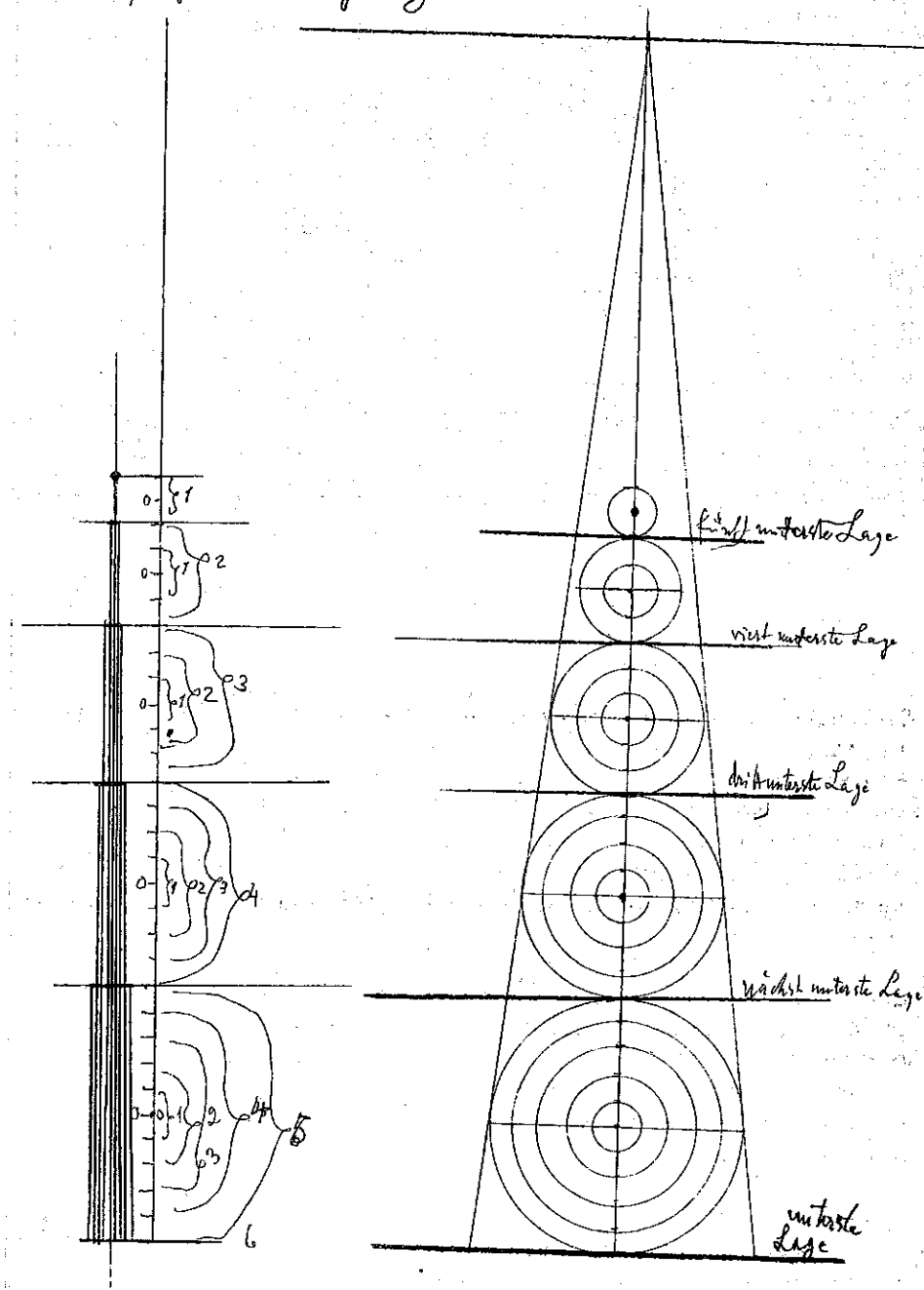


- 5 Organisation of the whole picture (pictorial whole), elements of articulation and their evaluation.
Planes:
Rhythmic – suprarhythmic
Dividual – individual.
- 6 How to achieve representation:
E.g. emphasis on the processes leading to form. Representation by essence, e.g. permeation (contrast: by semblance).
Or representation of the objective-spatial aspect.
- 7 Construction in detail and as a whole as composition, i.e. the relations of the pictorial components to one another and to the whole (ground plane).
- 8 Questions of style, whether the representation is by essence or semblance. In turn, impressive nuances within the preferential and essential.
- 9 Compositional inner and inmost being:
 - a) Static compulsion
 - b) Liberation therefrom
 - c) Dynamic-cosmic compulsion.

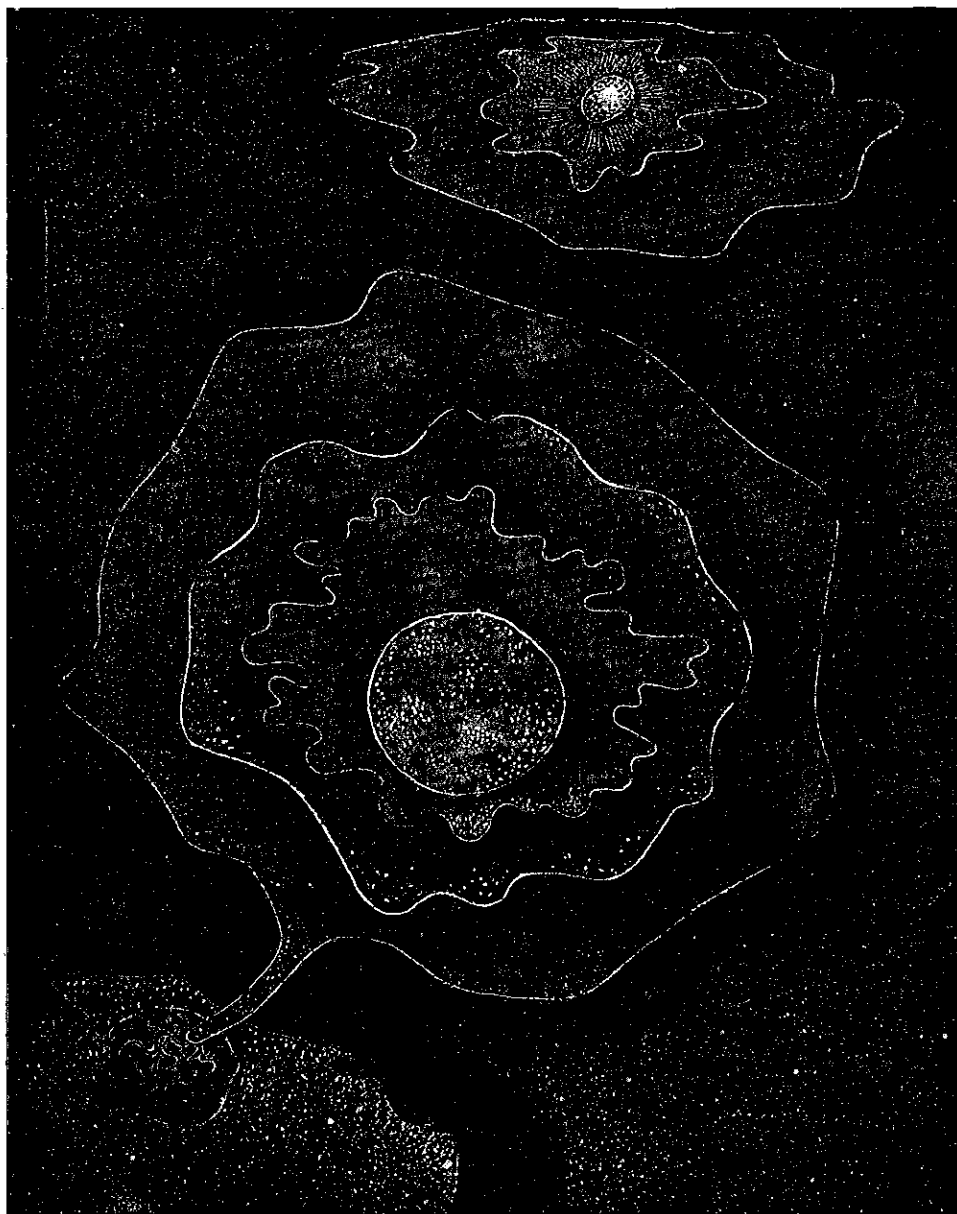
Offered as a retrospect in March 1927. 8/4 and 8/4a.

Natural growth and progressive
layer sequence.
(Appendix to Progressions.) 17/117.

*Natürliches Wachstum
und progressive Layerfolge*



The first figuration example (left) rather indicates longitudinal growth, the second (right) cross-sectional layer sequence. Cf. Volume 1, pp.23 and 354.



1929/ 3 H 17: *Vegetational-curious*.
Watercolour. 33 × 25.6.

Stratification applied genetically¹
Circles grow more and more in breadth
around points 1 2 3 4, in the temporal
sequence

1a	2a	3a	4a
1b	2b	3b	4b
1c	2c	etc.	

**Where one is already in the way,
the other must respect it.**

Two relations are crucial:

- The sequence of points
- Their nearness or distance.

16/148.

Stratification applied genetically:

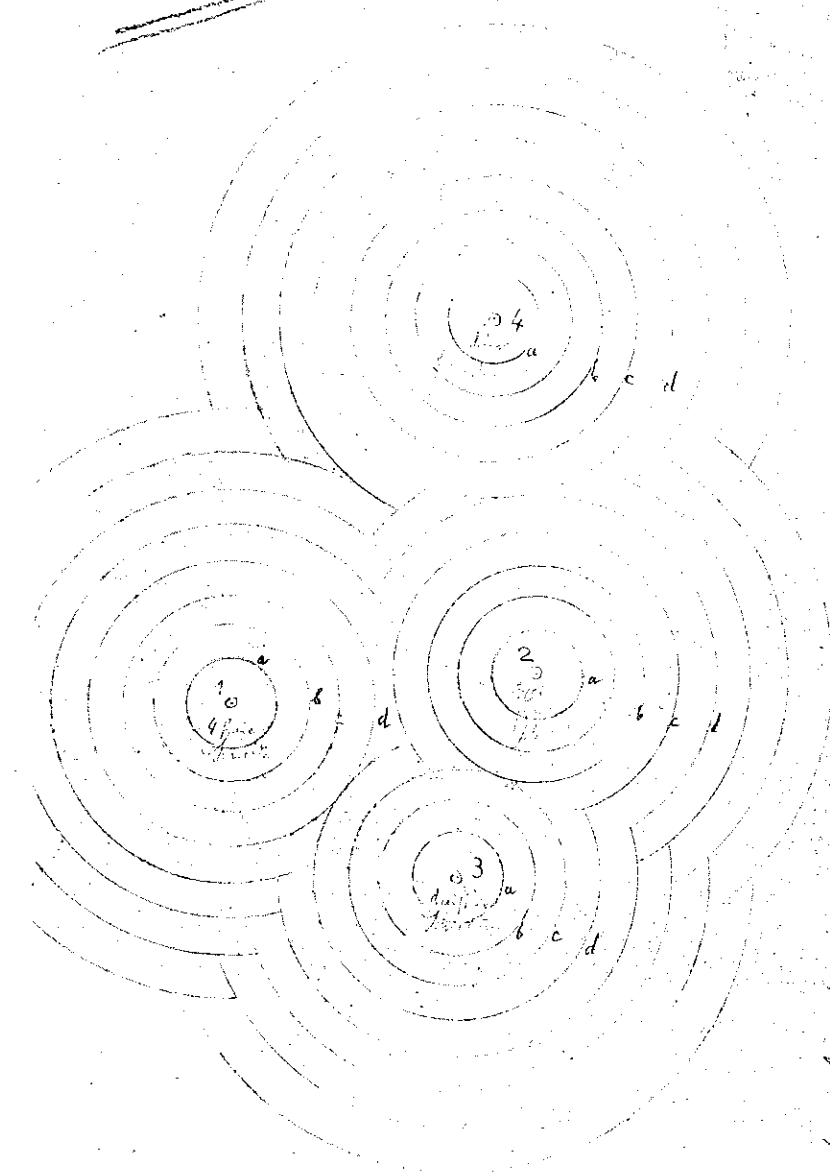
Circles 1a, 2a, 3a, 4a, etc., grow temporally separate in Interlocking arrangement.

The temporal course indicates the sequence of the growth process.

The temporally separate processes are comprehended in a simultaneous multidimensional figurational example (multidimensional contacts). Cf. p.127 'Temporally growing (leads),' In this further example the temporal sequence is graphically emphasised more strongly, in contrast to the end result in genetic stratification.

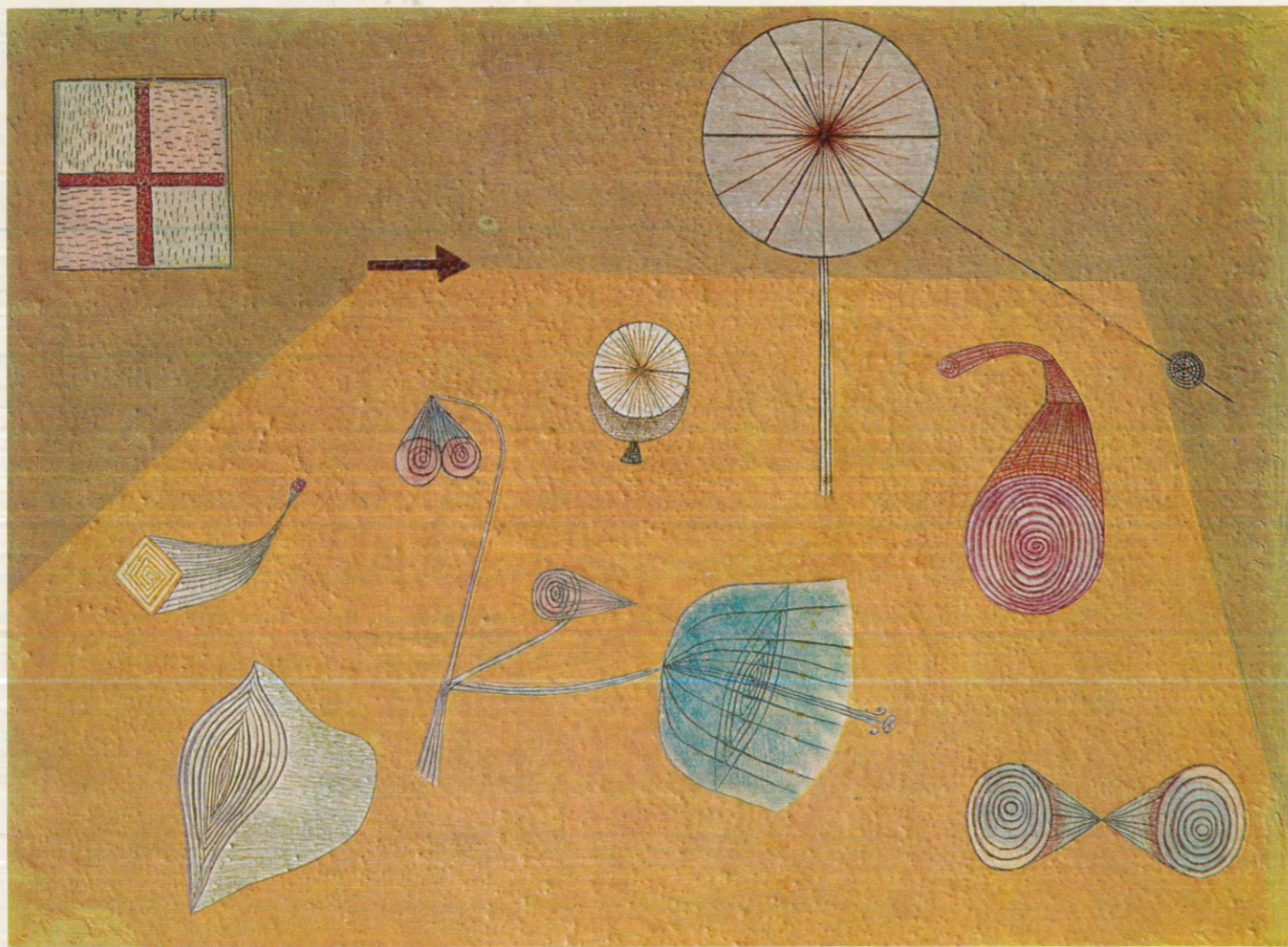
¹I.e. arranged by origin and growth.

Stückzahl Funktion angegeben



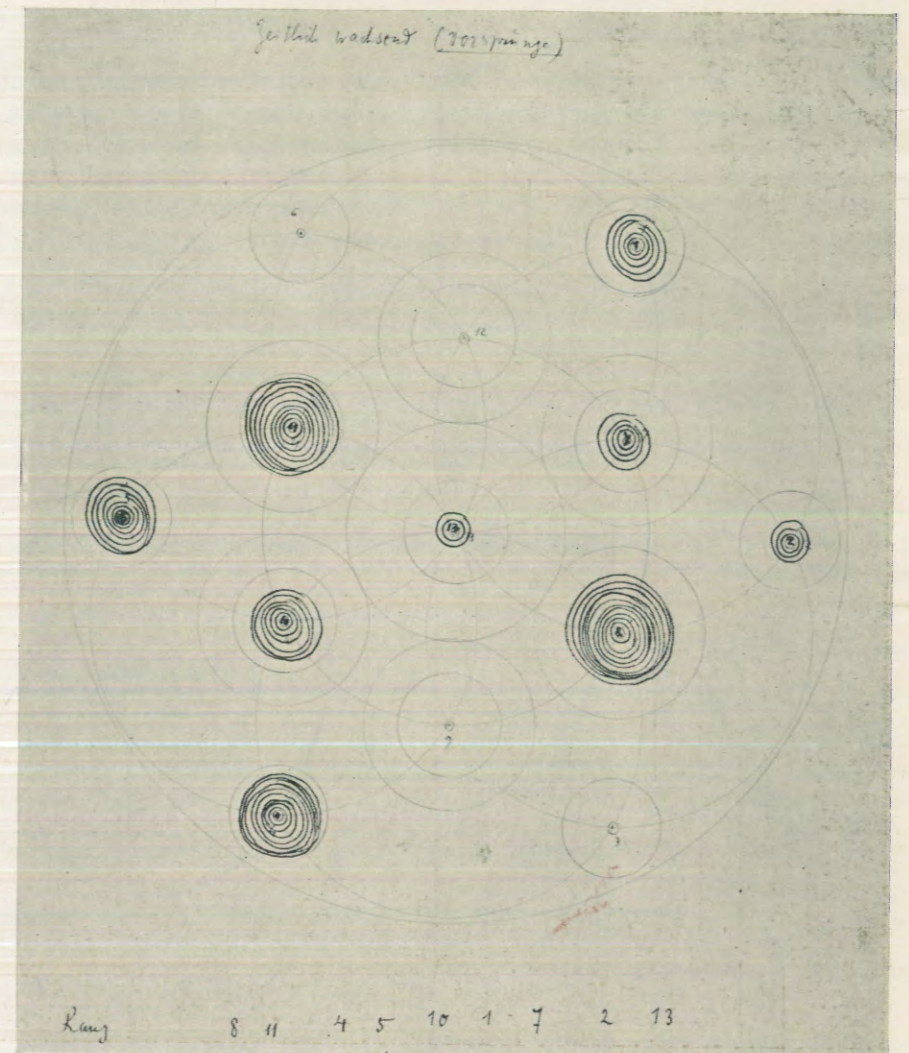
111. Wahrnehmung (Voraus)
pers. Wahrnehmung 41 Die Reihenfolge der Punkte
bei der Wahrnehmung der Farben

Um die ~~mit~~ 1 2 3 4 wachsen. Fressen können nicht
in die Breite und zwar in der Zeitfolge 1a 2a 3a
4a 1b 2b 3b 4b 1c 2c etc. wo schon
einen im Weg ist hat der nächste zu intervenieren.



1927/omega 6: *Times of the plants (time and plants)*.
Oil on wood, 39 x 53.5.

Plant growth in cross and longitudinal section combined. Cf. 'Synthesis of cross-sectional and longitudinal plant growth', p.135, also 'Movement combining space and time', Volume 1, p.83, with a sextipartite circle and pendulum in the upper part of the picture.



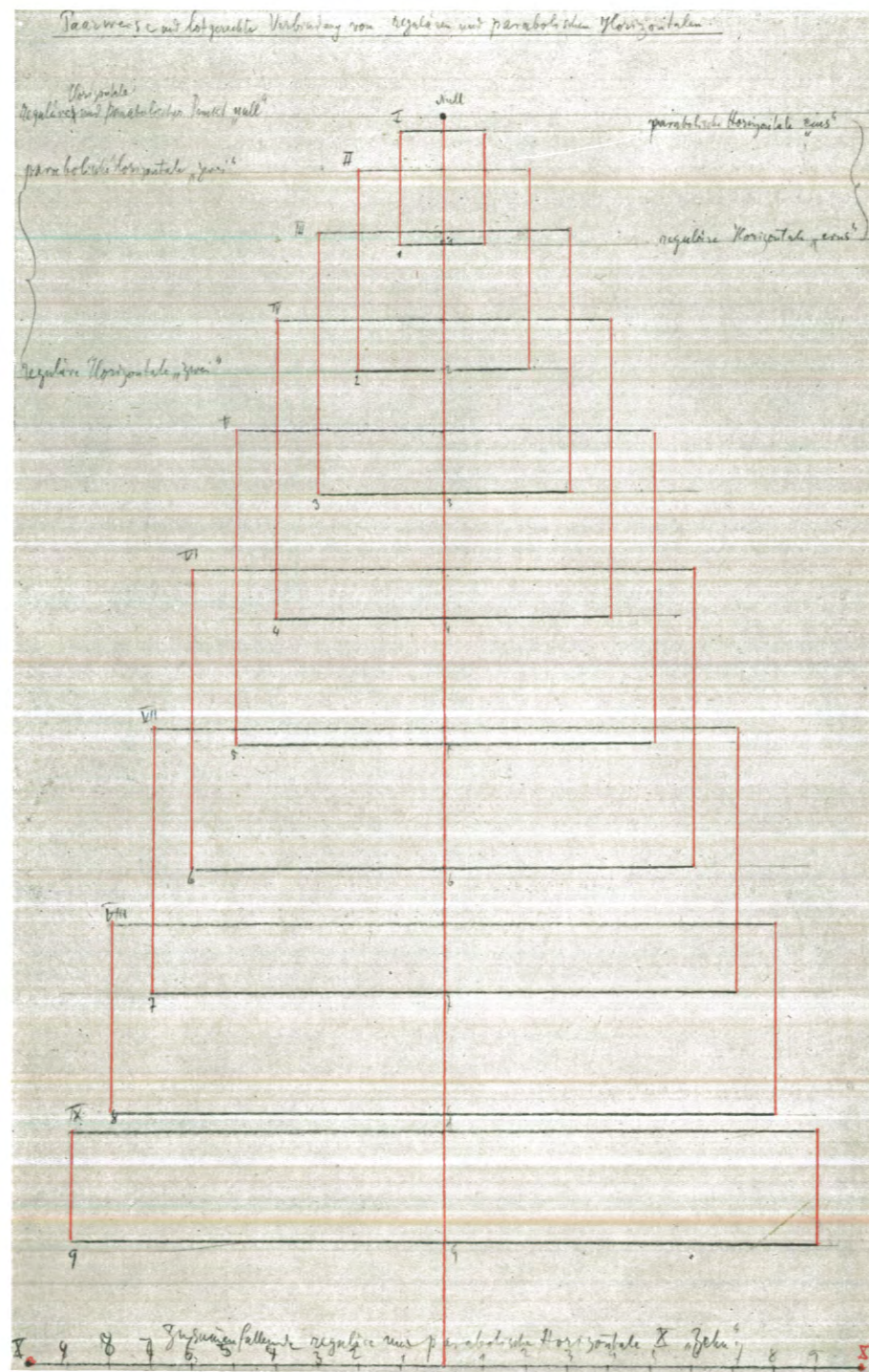
'Temporally growing (leads).'

Parts lying to the fore or rear (leads and retarding elements) are comprehended within a spatial unit as temporally separate processes (spatio-temporal process, multidimensional simultaneity).

The circular stratifications are arranged by growth, i.e. genetically.

Cf. 'Stratification applied genetically', p.125, 'Centrally irradiated growth', p.129. Translated into measure and weight movement, combined with colour: 1925/B 9: *Abstract in relation to a flowering tree*, colour plate, p.145.

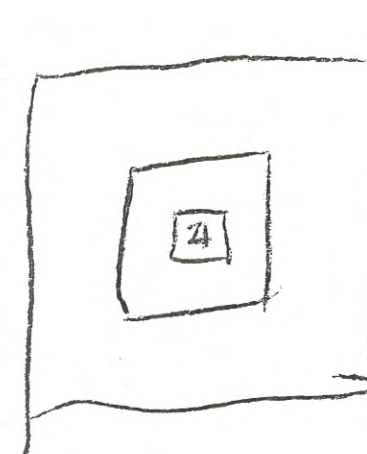
Rank	Temporally growing (leads). 21/23.
8	
11	
4	
5	
10	
1	
7	
2	
13	



Paired and upright connection
of regular
and parabolic horizontals. 16/227.
Regular horizontal
and parabolic point 'zero'
Parabolic horizontal 'one'
Parabolic horizontal 'two'

Regular horizontal 'one'
Regular horizontal 'two'

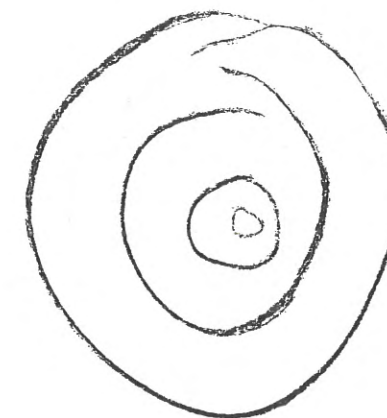
Coincident regular
and parabolic horizontal X, 'ten'
X 9 8 7 6 5 4 3 2 1 0 1 2 3...



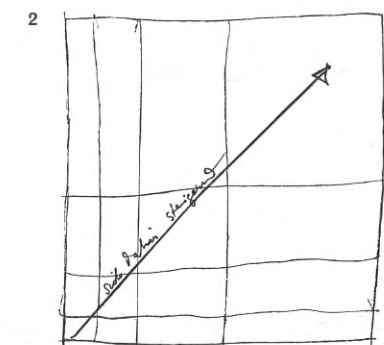
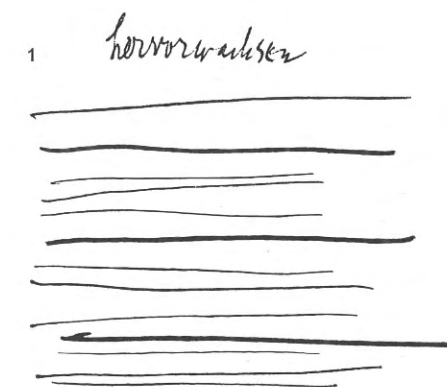
[1] Productive swelling of the lines.
Emergent growth. 60/13.
[2] Progressive growth (two-
dimensional).
Cf. pp.137 and 140.

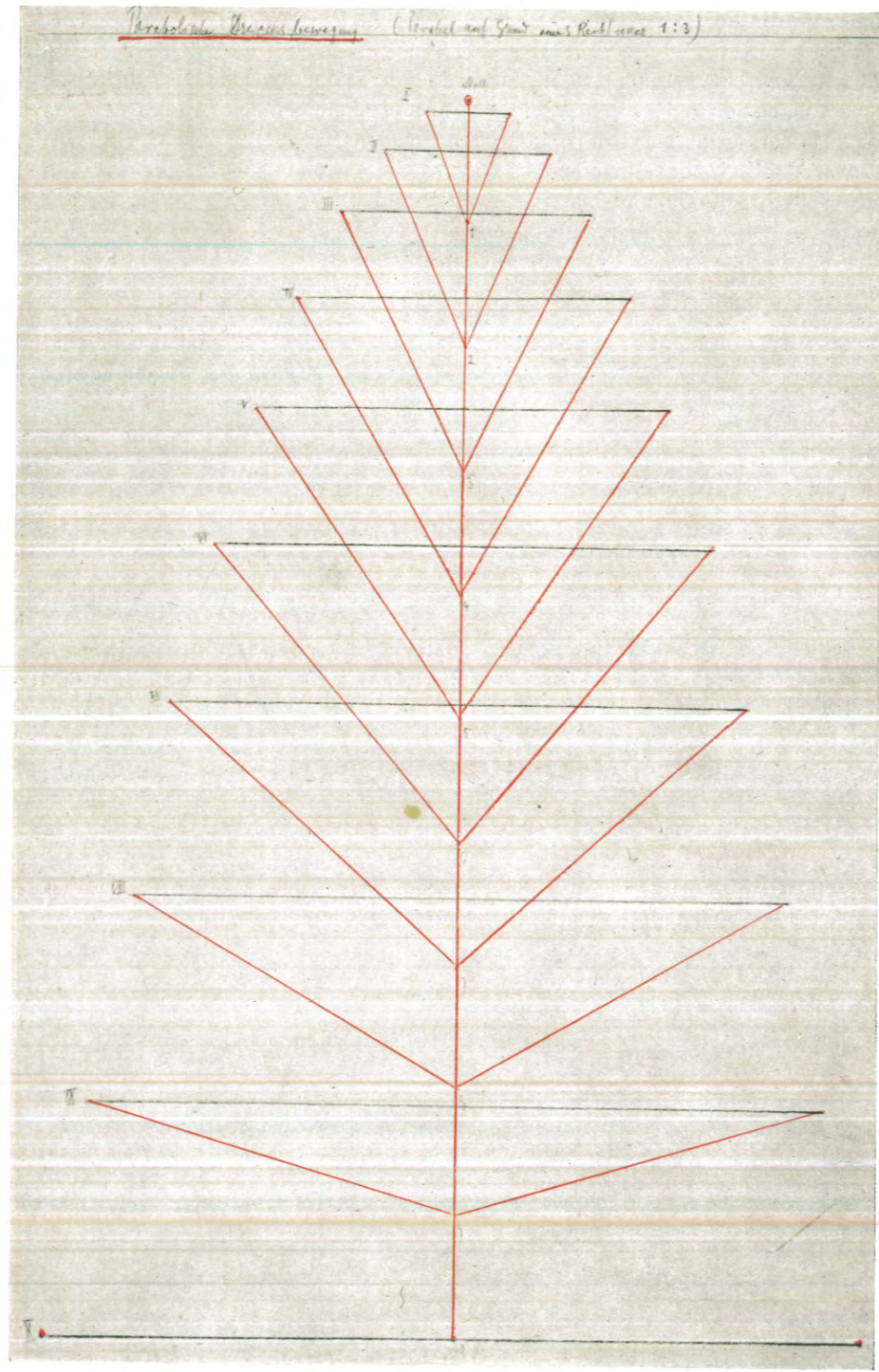
Centrally irradiated growth

Growth takes place, as though it were a matter of dimension, on all sides, evenly. Growth
takes place in relation to the earlier whole. Note: self-explanatory.
Ever again square (stratified form), only larger or smaller.
Measure productively uncharacteristic.
Ever again circle, only larger or smaller.
Ever again triangle, only larger or smaller, etc.
(And!) ever again the same interior construction.



Non-characteristic form movement (primary movements). 39/1-3.
From the section: Secondary elements on the basis of the square. 39/1-146.





Parabolic triangular movement
(parabola based on an oblong 1:3),
16/229.
Parabola: the intersection of a cone with
a plane parallel to its side.
Mechanically definable as a tensile
(executive) process between a moving
point on the one hand and a fixed
point and a fixed line (straight line)
on the other. 16/216-240.

Multidimensional movements on a square
base or differential movements as
'extension' and angle movements.
39/116.

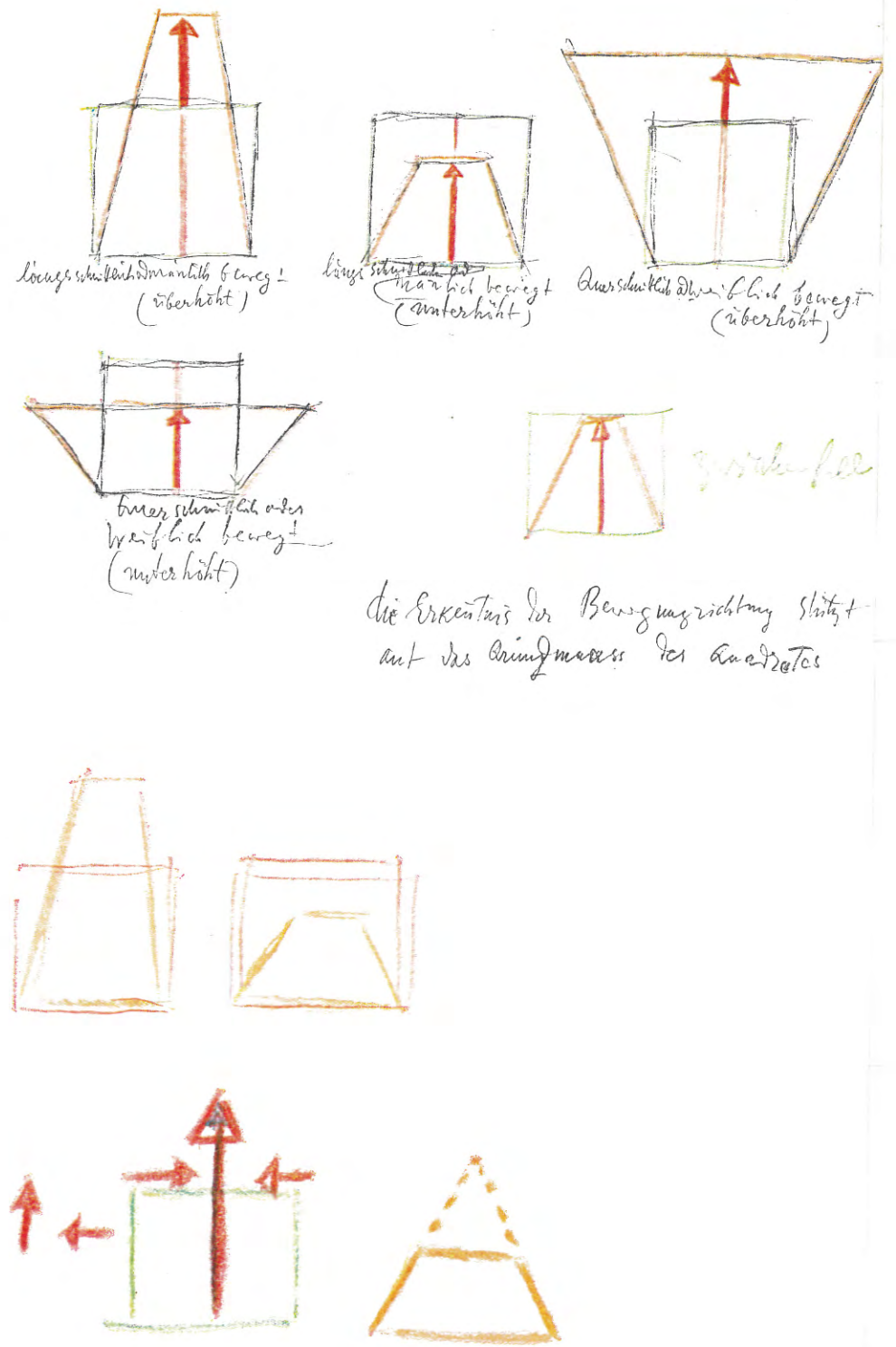
In longitudinal section or moving in the
male mode (over-extended)
In longitudinal section or moving in the
male mode (under-extended)
Cross-sectional or moving in the female
mode (over-extended)

Cross-sectional or moving in the female
mode (under-extended)
Intermediate case
Recognition of the direction of movement
is based on the basic measure of the
square

The effects of these movement modes are
characteristic as effects or phenomena
only as over-extended or under-extended
movement.

The 'multidimensional' element $\uparrow \leftarrow$
consists of this combination of
movements

These movements may also be called
tensions related to the triangle

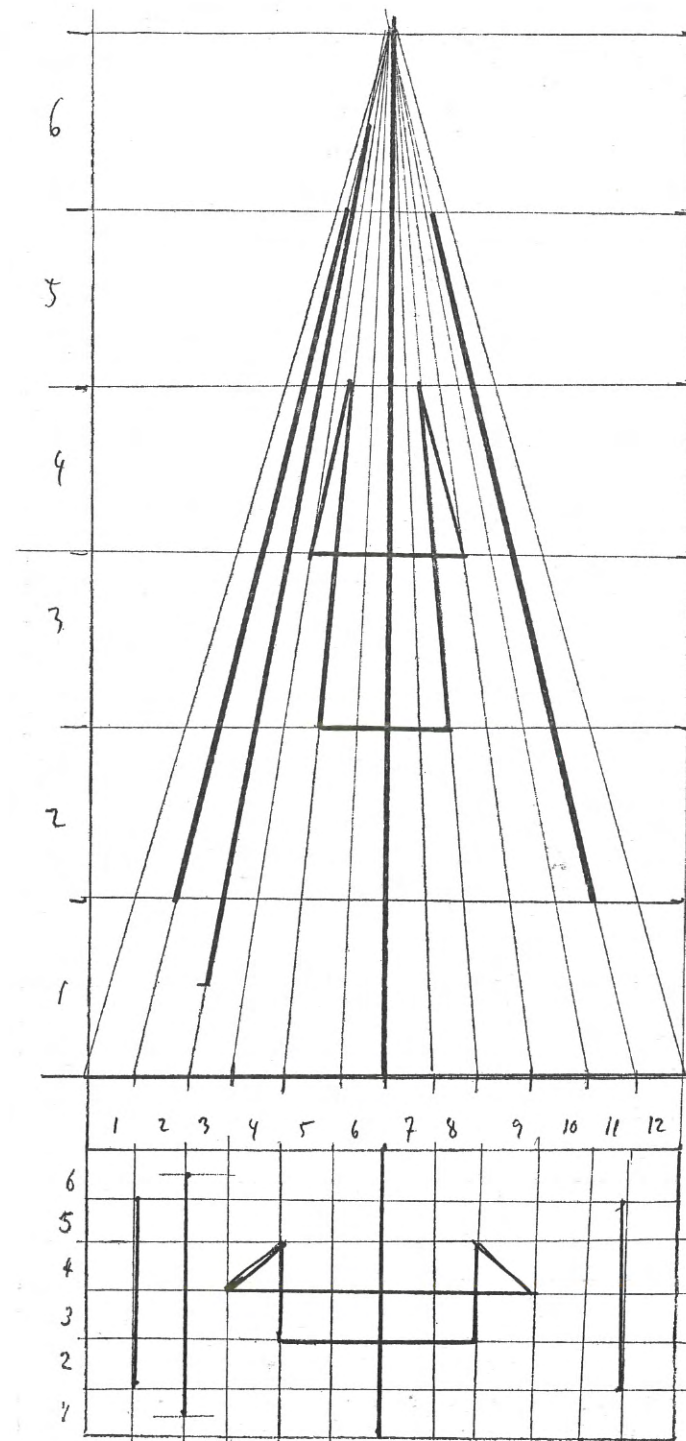


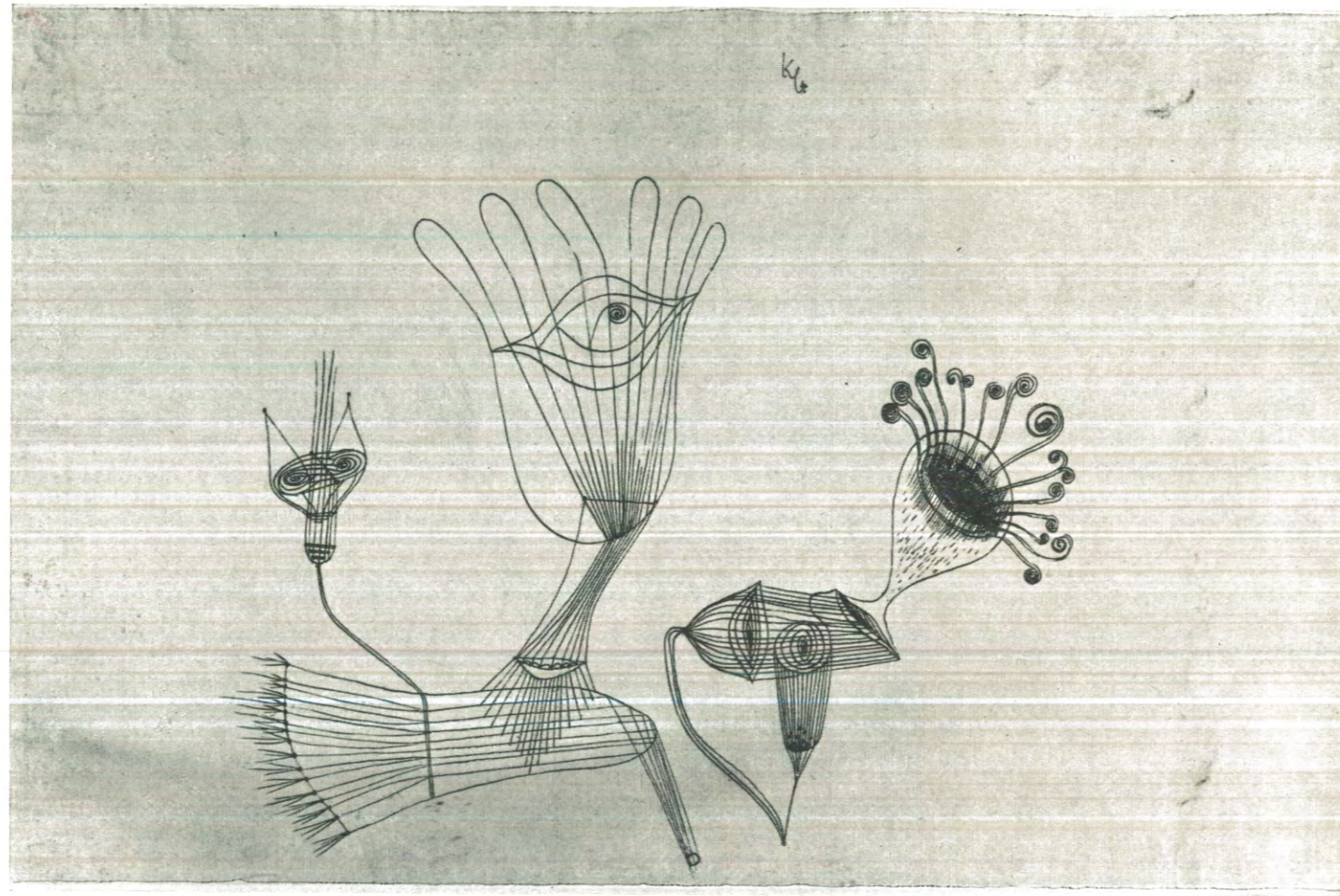


1937/ unnumbered *Signs of growth*.
Tempera, 47 x 33.

Extension upwards and foreshortening
upwards (the parts 'above-below' are
uniformly enlarged, and the parts
'left-right' diminish upwards more
and more). 17/40

From: Formal movement.
Abnormal changes in basic form
(pathology). 17/36-42.

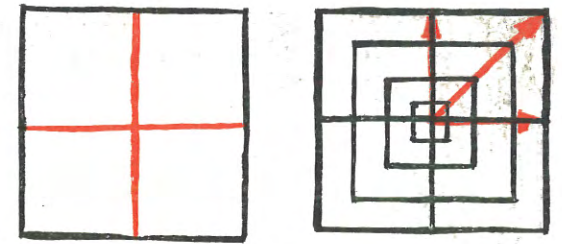




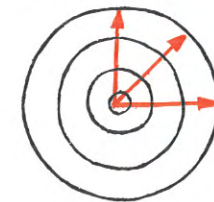
1927/Oe 10: *Underwater*.
Pen and India ink. 30 × 45.
Sections in longitude and cross-sections are
represented combined.

'The object grows beyond its appearance through our knowledge of its inner being, through the knowledge that the thing is more than its outward aspect suggests. Man dissects the thing and visualises its inside with the help of plane sections; the character of the object is built up according to the number and kind of sections that are needed. This is visible penetration, to some extent that of a simple knife, to some extent helped by finer instruments which make the material structure of material function clear to us.' From 'Ways of Nature Study' (1923). For the complete text cf. Volume 1, p.63-67.

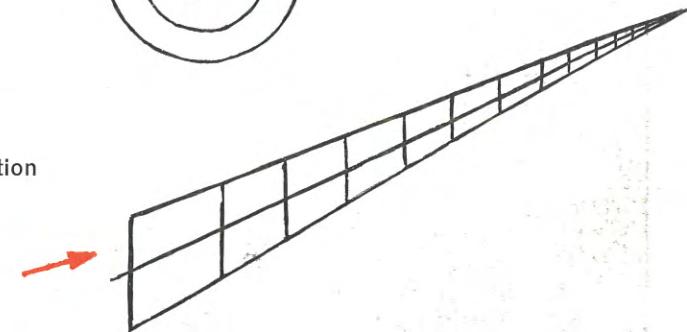
Synthesis
of cross-sectional and longitudinal
plant growth. 39/50a and 39/51.
Area crosses in the characteristic
diagonal growth of a small square.



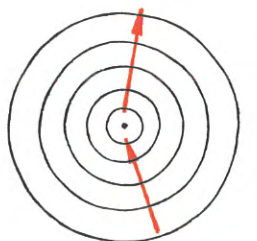
In plants:
Partial-cross-sectionally growing



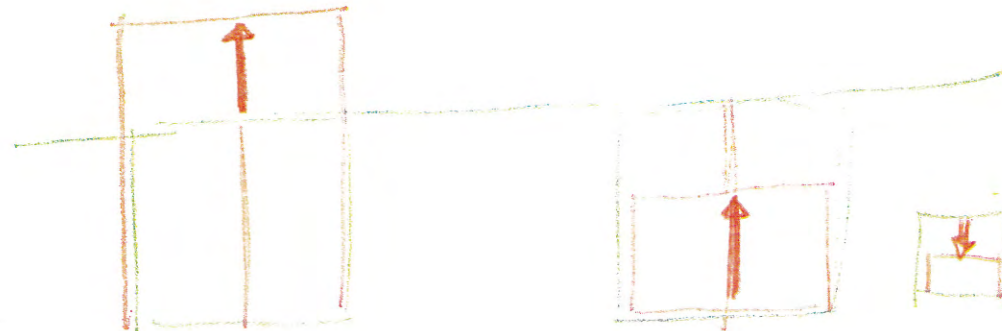
Growing in longitudinal section



Longitudinal plant growth:
Longitudinal growth is partial
(quotient) and centripetally
directed, moreover.
Possibly to be called 'female'.
Cross-sectional growth is complete
and directed centrifugally,
moreover.
Possibly to be called 'male'.
Synthesis of cross-sectional and
longitudinal plant growth.
Text: 39/64.



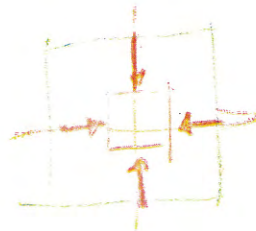
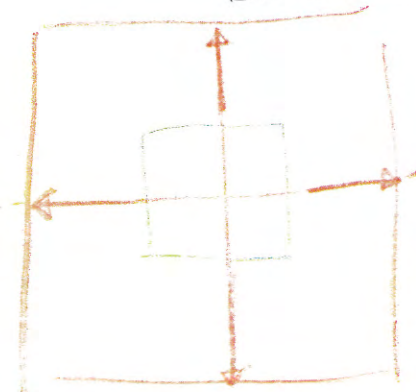
Ein dimensionale Quadratsbewegung
auf Bildgrundlage



überhöht
männlich positiv

unterhöht
weiblich negativ

dasselbe zwei dimensional



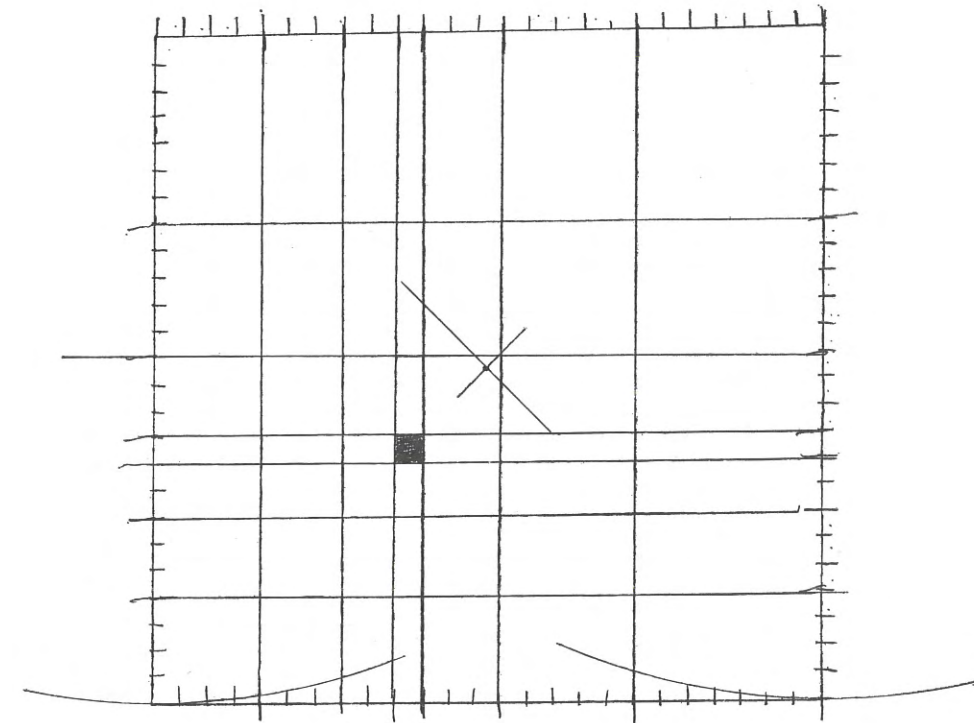
The same, two-dimensionally

Movements:
Two-dimensional and double-directed
progressions. 17/104a.

25 units above-below
25 units left-right

Essential process:
Extension dilutes energy.
Conversely, contraction enhances
energy.

25
Einheiten
oben unten

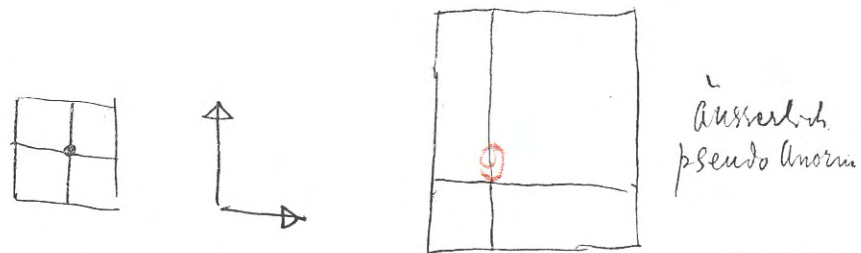


wesentlicher Vorgang: Zehnung vermindert die Energie
Umkehrung: zusammenziehung verstärkt die Energie

Bewegungen:
2 dimensionale doppelt gerichtete
Progressionen

4	3	2	1	3	5	7
			2			
			3			
			4			

Quadrat
25 Einheiten links rechts



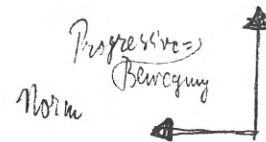
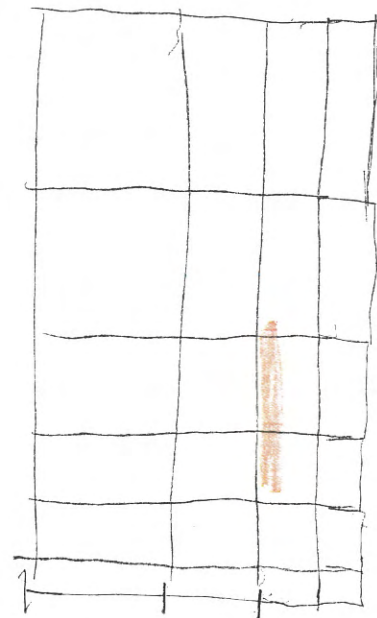
Movement of the square from normal to abnormal. 17/48.

Outwardly pseudo abnormal

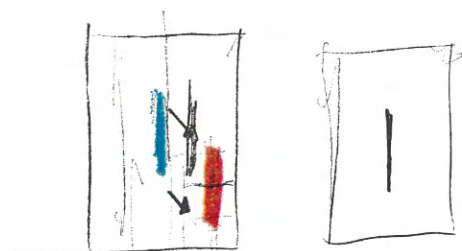
Äusserlich Pseudo Anorm



Outwardly pseudo abnormal



Progressive movement normal



innerlich anorm

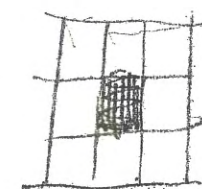
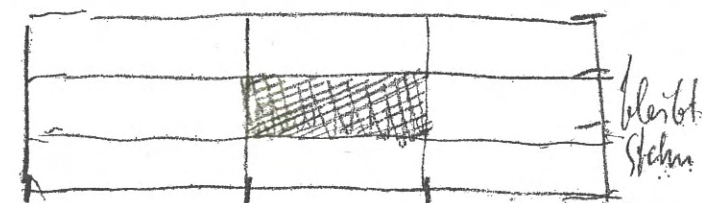
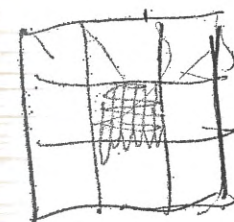
Inwardly abnormal

From square to oblong in even movement. 17/48.

Arrested \updownarrow

Moves evenly \leftrightarrow (in mirror writing).

vom Quadrat zum Rechteck in gleichmässiger Bewegung



gleichmässig die Bewegung

Motion processes proceeding from normal in even or progressive movement.

Shifts in centre and centre of gravity.

Cf. Dimension and weight and their movements, pp.140-143, Colour movement, p.146, and synthesis in a formed example: 1925/B 9: *Abstract in relation to a flowering tree*, p.145, also 1930/ 199: *Multicoloured blossoming*, p.148.

From the section:

Strain.

Formal movement.

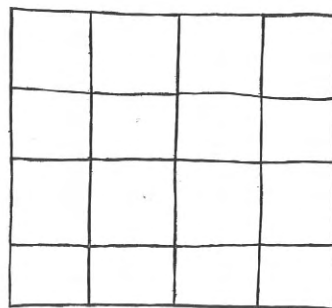
Unidimensional movement, two-dimensional movement

(uneven movement, e.g. over-extension and foreshortening.

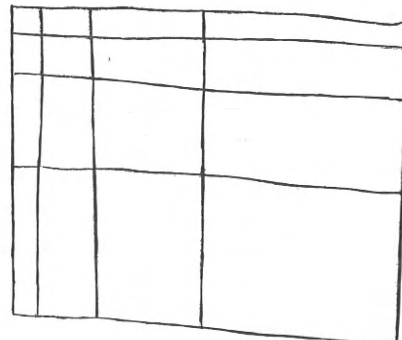
Abnormal interior construction). 17/43-48.

- 1 Weiss
- 2 hellst. gr.
- 3 hellgr.
- 4 grau
- 5 dunkelgrün
- 6 dunkelst. grün
- 7 schwarz

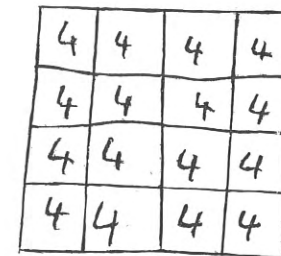
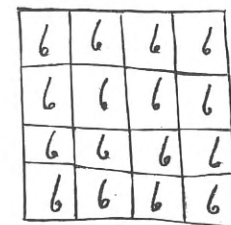
Gleiches Maass



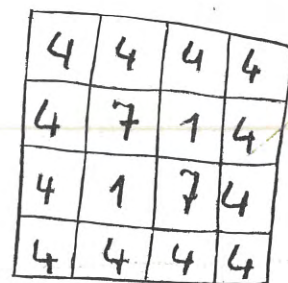
ungleiches Maass



Gleiches Gewicht
bei
gleichem Maass



Ungleiches Gewicht
bei gleichem Maass



Dimension and weight and their movements. 42/1.

As dimensional change

Expansion Imponion
Broadening Narrowing

As weight change

Rarefaction Condensation
Extension Contraction

- Equal dimension
- 1 white
 - 2 lightest grey
 - 3 light grey
 - 4 grey
 - 5 dark grey
 - 6 darkest grey
 - 7 black

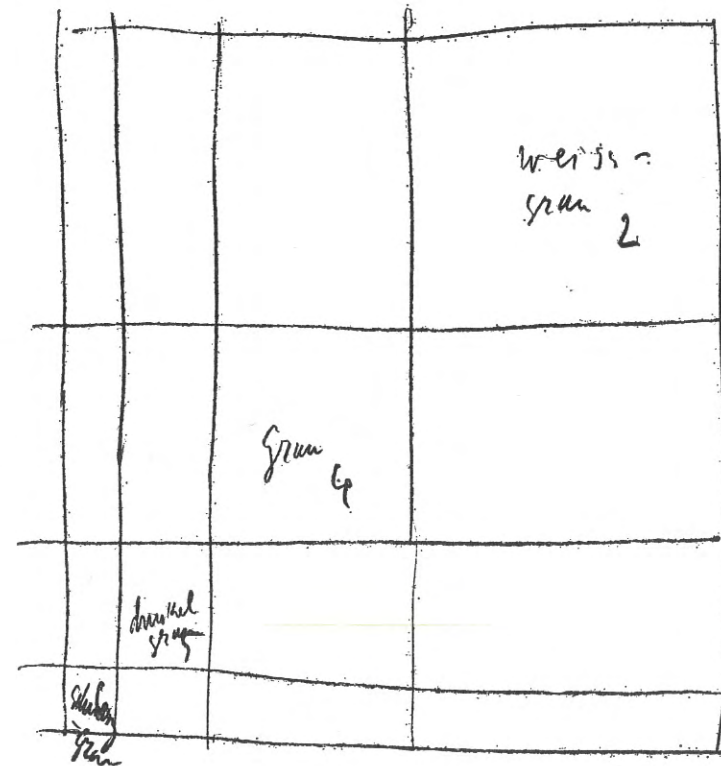
Unequal dimension

Equal weight at equal dimension

Unequal weight at equal dimension

Unequal weight at unequal dimension. 42/1a.

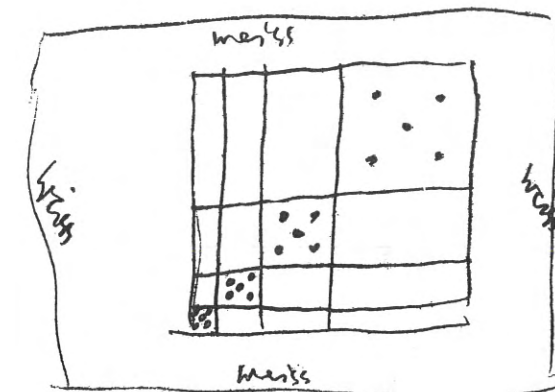
Ungleiches Gewicht bei ungleichem Maass



Assuming a square as the starting point, the conclusion is that a progressive wrench has taken place, pushing out more and more the oblongs that were originally of the same size.

When the whole, field by field, consisted of the same amount of pigment, the pigment wanes when the dimensions increase. When they decrease, the pigment waxes.

For example black pigment has the most marked effect against a contrasting base of white.



Large fields, then, are pigment-poor, small ones pigment-rich. The analogous process in terms of the mutuality of measure (or 'dimension') and density (or 'weight') may be expressed in the principle: small fields become denser, large fields more rarified. Interaction of dimension and weight in parallel or in the same direction underlines, emphasises and reinforces any dimensional change. Oppositely directed interaction of dimension and weight impedes, cancels or reverses dimensional change by a counter-trend of density, according to the degree of energy applied.

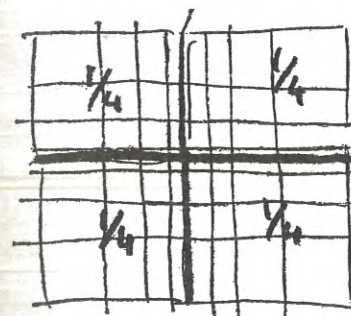
Theorem:

Weight is the degree of density of medium contrast.

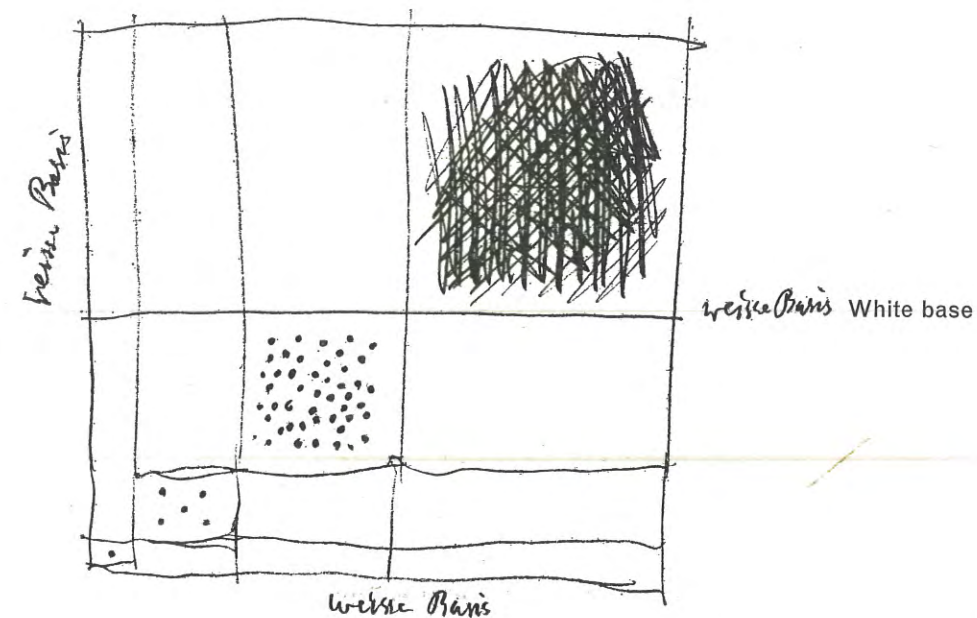
On a white base the enhancement marches in the direction of black.

On a black base the enhancement marches in the direction of white.

On a colourless base the enhancement marches in the direction of colour.



from the
small
heavy
middle
large
light



Example of figuration. 42/2.

In contraction and extension changes from a given magnitude, bilateral movement ensues (striping with progression in two directions). 17/64.

The rule is: extension or contraction of tonality combined with dimensional change, results in enlargement or reduction of area content.

There is no absolute commitment to one direction along the tonality range.

White base: extension is towards black and controls brightening.

Contraction is towards black and controls darkening, i.e. on a white polar base.

Conversely: extension towards white controls darkening.

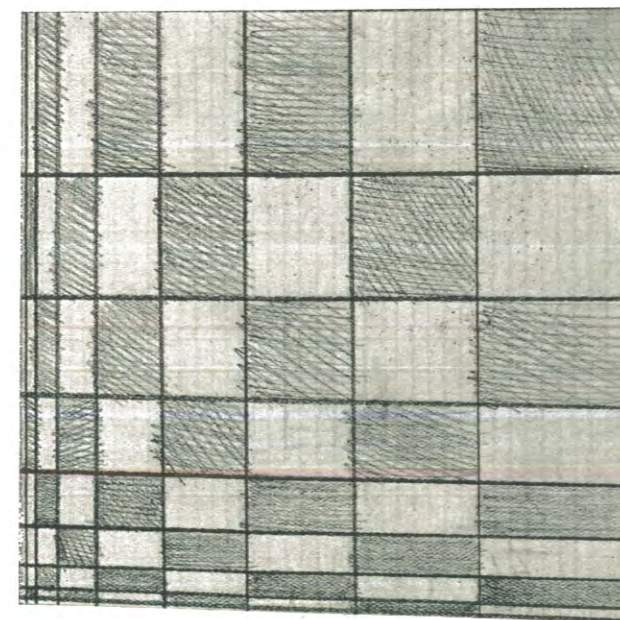
Black base: contraction towards white controls brightening, i.e. on a black polar base.

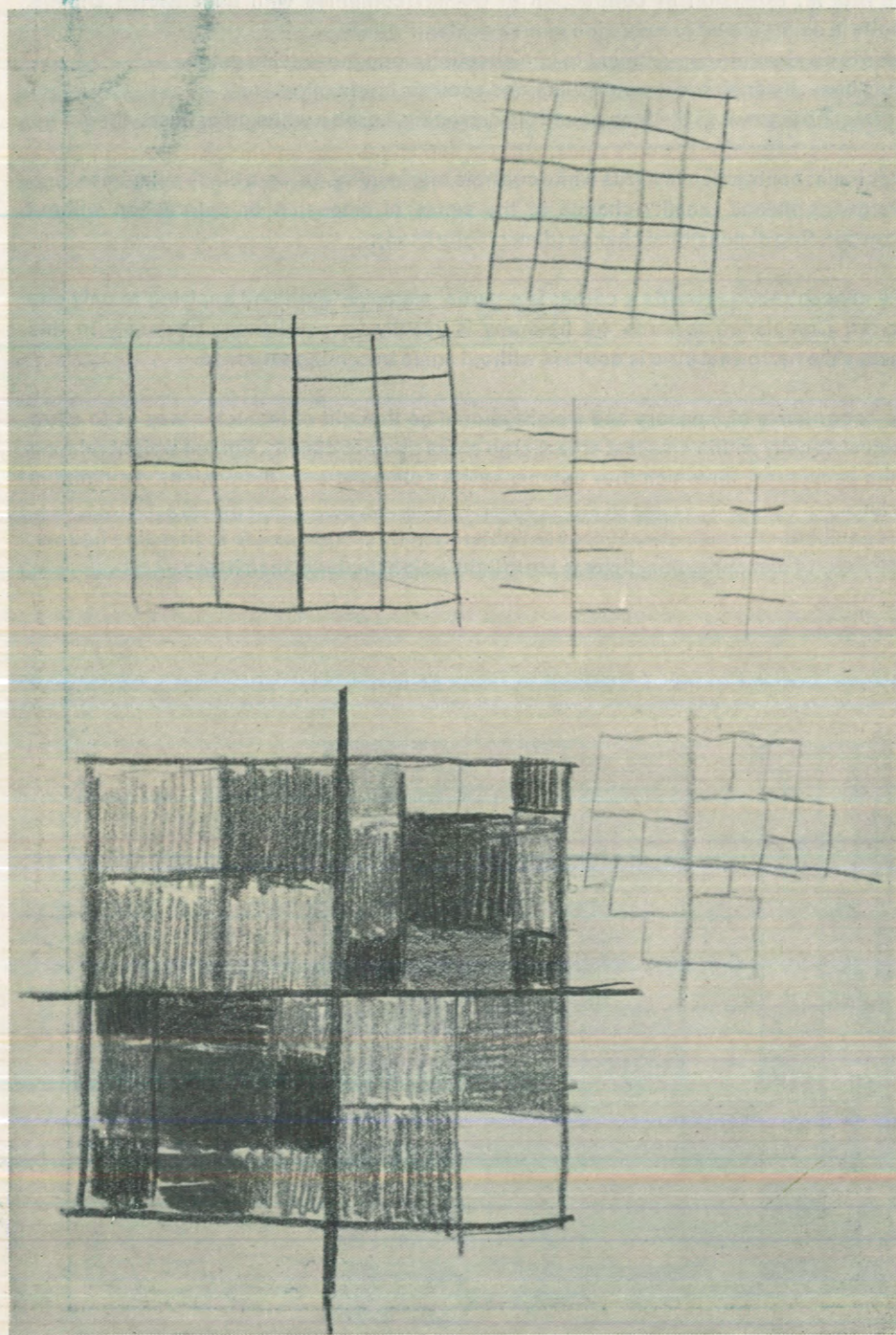
Divergence means tonality change in the sense of extension or contraction without corresponding dimensional change (dimensions fixed).

Now concentration towards a corner is a partial matter, a 'quotient' applying to only one quarter. Completion towards 4/4 harmony is readily accomplished; obviously in this process the narrowest strip is doubled without again becoming extended.

The congruence of measure and weight should be thought of in such a way as to allow greatest density within smallest area. Large areas thin out density, lighten weight relating to the same area, for which they compensate by changed area dimensions. Equilibrium prevails.

This equilibrium comes about because lighter weights correspond to higher area figures; but by way of compensation, there is more light-weight material than heavy.





Caption for facing page:
1925/B 9: *Abstract in relation to a flowering tree.*
Oil on cardboard. 38.5 x 39.

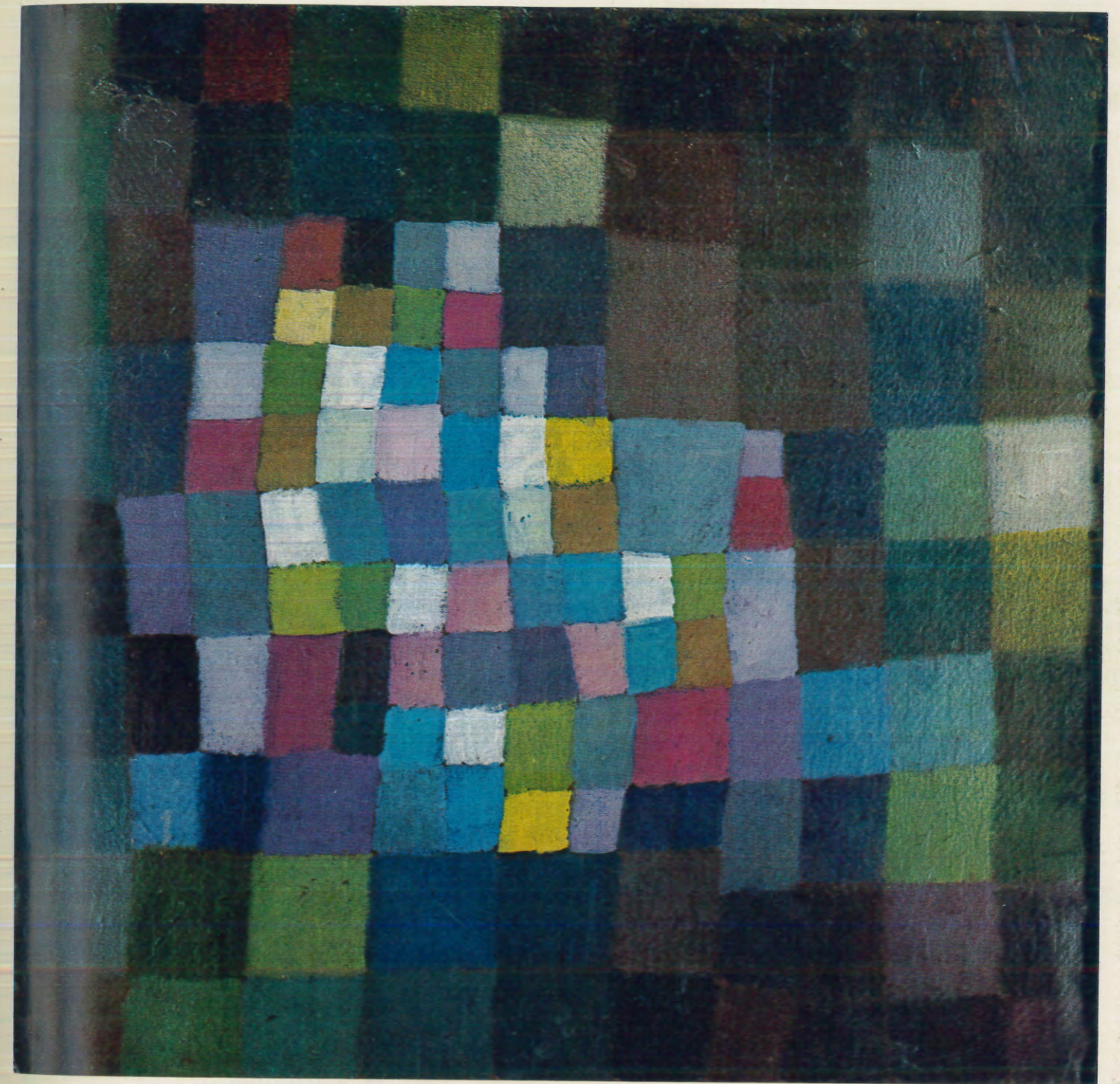


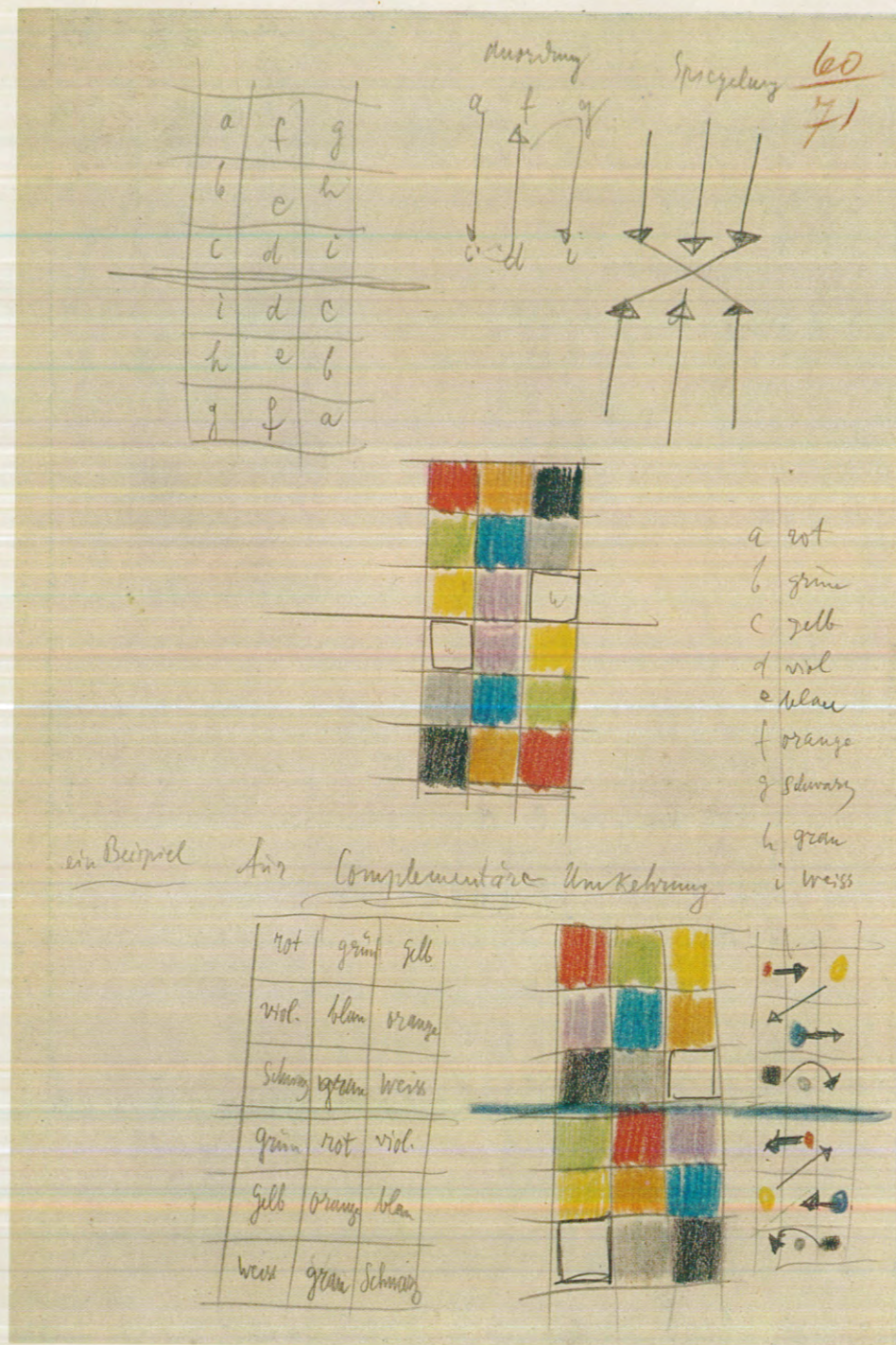
'Movement course (genetic) from the inside to the outside.'

Example of figuration 9/63a shows free three-dimensional square movement and its structural analysis. Or seen synthetically:

- 1 Norm or motionless base picture.
- 2 Linear and area structure.
- 3 Structure moving in two dimensions.
- 4 In the higher example of figuration measure and weight movement are added (colour and tonality). Three-dimensionally.

Cf. preceding pages:
Dimension and weight and their movements.
Expansion – Implosion.
Contraction – Extension.





Augmentation modes:

Shift,
Rotation,
Reflection.
60/71.

Possibilities:

1 colour designations

a red
b green
c yellow
d purple
e blue
f orange
g black
h grey
i white

2 arrangement

3 reflection

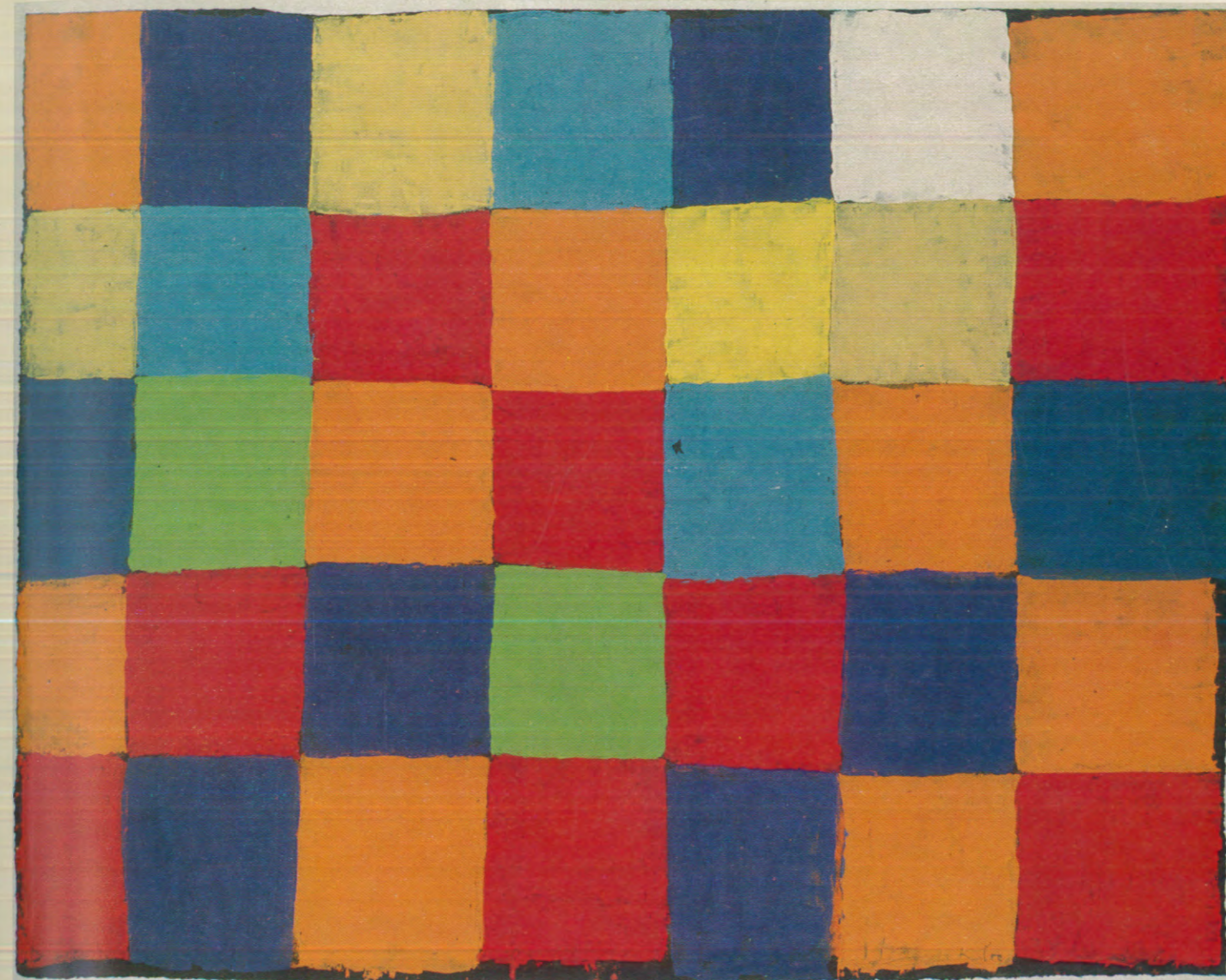
4 done in colour.

An example of complementary reversal:

1 colour designations

2 process of complementary reversal

3 done in colour



1930/Qu 1: Colour plate Qu 1.

Pastel with coloured paste, 37.3 x 46.8.

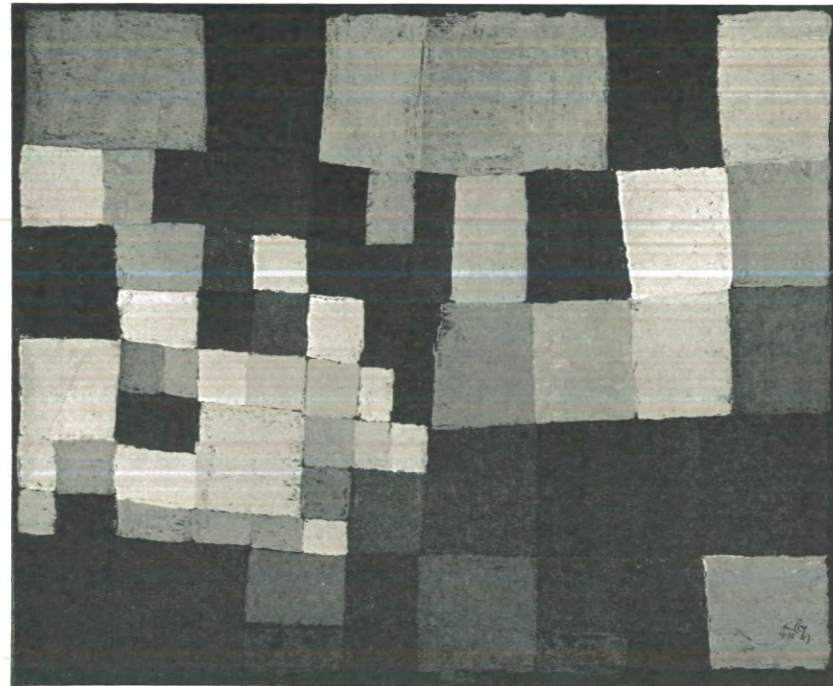
Approach, essence, semblance.
 Essence opposed to semblance.
 Representation by essence and semblance.
 Permeation as representation of the objective,
 spatial aspect.

Approach, essence, semblance

Dynamic forces (active lines)

Essence contrasted with semblance.
 Practice on fruits.
 Essence of the apple, the snail shell,
 the human habitation. 8/7.

Concepts: Dynamic forms – limiting forms
 Added abstract element: active-linear
 Linear-medial
 Dynamic forces are within (esoteric)
 Limits are without (exoteric)



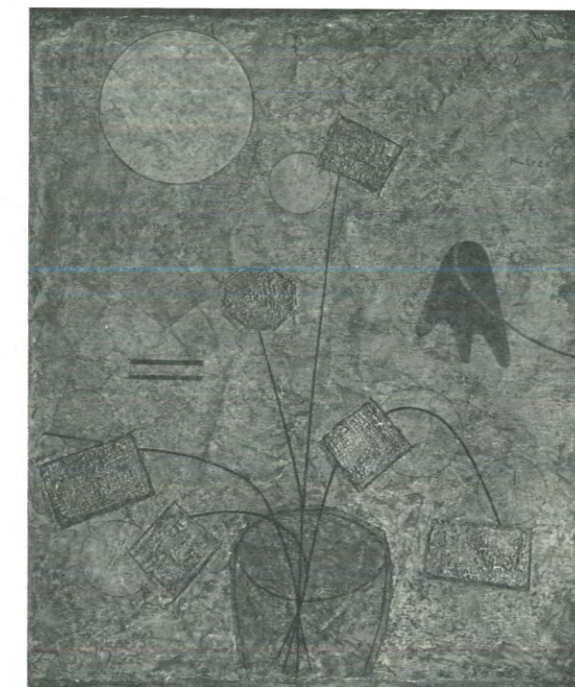
1930/199: *Colourfully blooming*.
 Pastel with coloured paste on paper.
 41.5 x 51.5.
 Representation by essence.
 Open cross-section of blossoming.



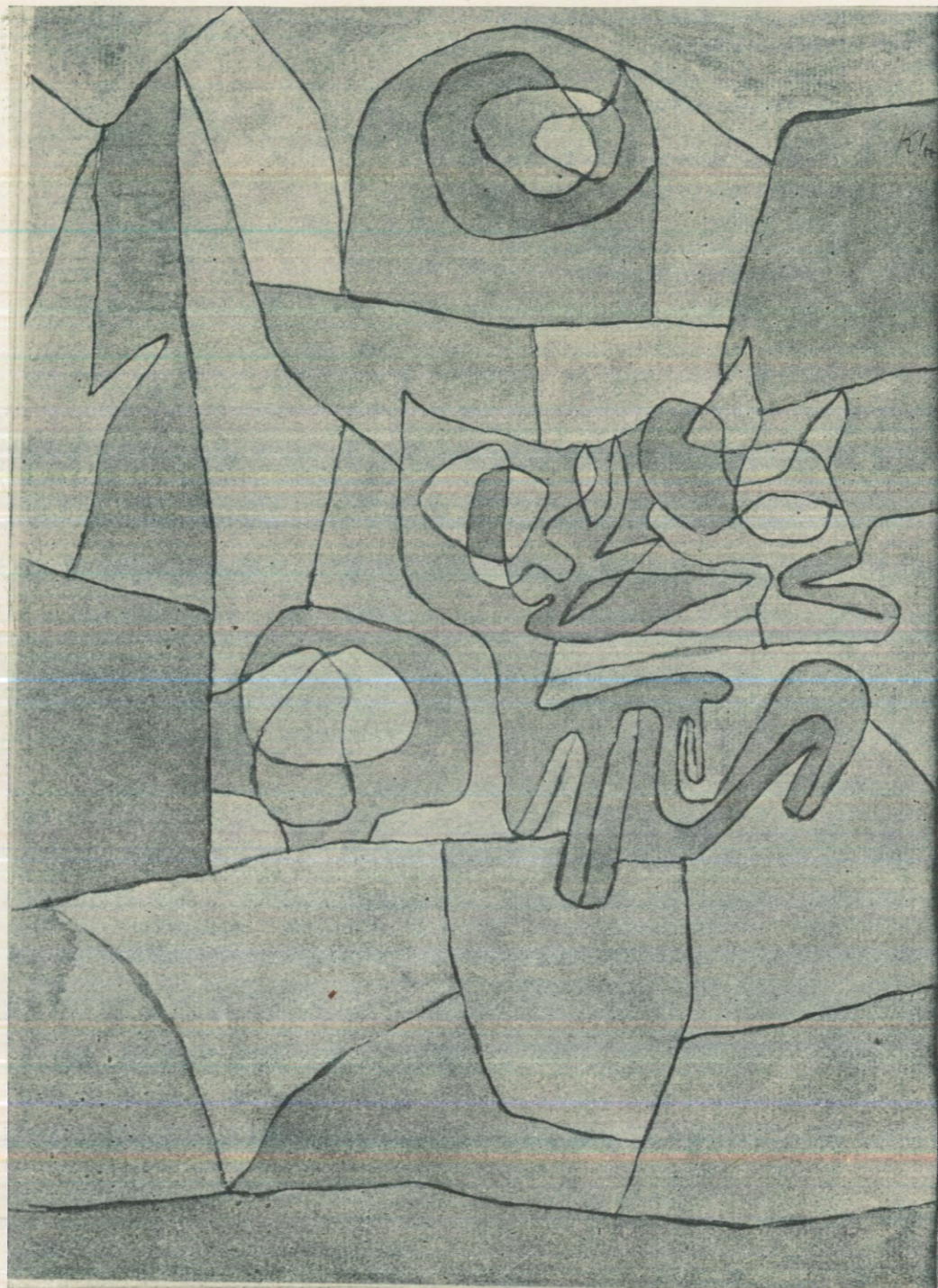
1925/10: *Flowers in glasses*.
 Oil on paper on cardboard.
 52.5 x 41.5.
 Representation more by semblance.

1933/A 9: *Like flowers in a glass*.
 Waxed watercolour on plaster-grounded cardboard.
 54 x 46.
 'Synthesis of essence and semblance.
 Combination of pure visual function with
 abstraction.'

Interior-exterior



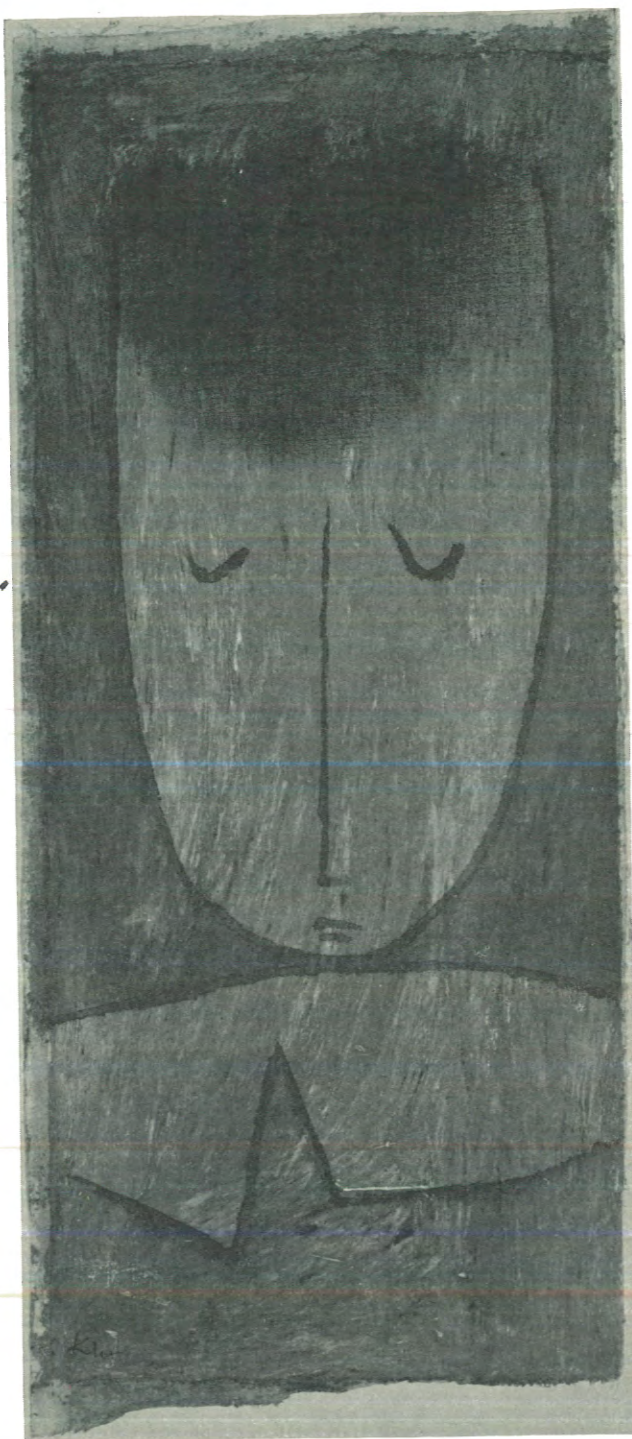
The interior is infinite, all the way to the mystery of the inmost, the charged point, a kind of sum total of the infinite (the causal). Comparison from nature: the seed. The exterior is finite, i.e. it is the end of the dynamic forces, the limit of their effects, dictated by the causal. One may also call it the virtual, the objective. One could also say: erotic-logical – eros-logos.
 (Retrospect 1926, 12 November 1926.)



1934/R 18: *Flower vase*.
Watercolour. 31.3 × 21.8.



1932/x 17: *Garden after a storm*.
Oil on canvas. 75 × 106.

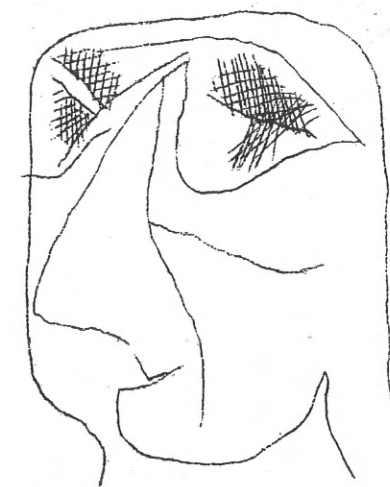


1934/R 6: *Dis-appointed*.
Oil on canvas. 54 × 24.

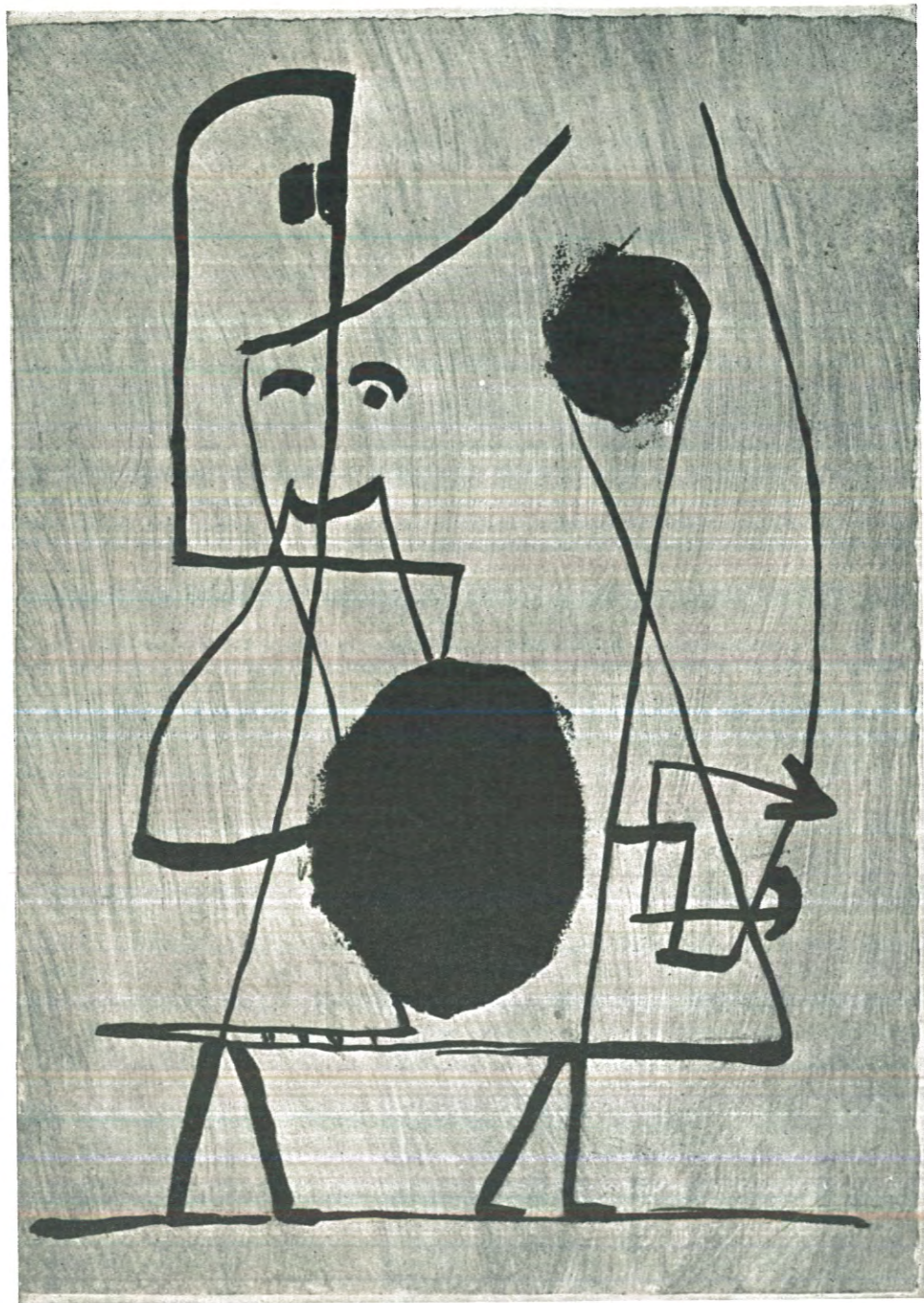
Individual proportions related to one another and to the whole
 Their cause and effect
 Proportion expressed as active, medial, passive
 Will and means to movement
 Function of a movement proportion
 The forming of an organism from out its essence :
 The human body
 Life-filling figuration of an individual proportion

11 December 1923

Building upwards from below, from matter animate, we have entered upon a higher region, that of individual proportions. Its theme is the relation, in appropriate number, of parts to one another and to the whole. These are relations of many different types – of like kind such as size contrast, heaviness, quality, degree of activity or passivity, relation of cause and effect, or of mixed kind such as the simultaneous figuration of several such relations, e.g. blending colour with tonality and line.



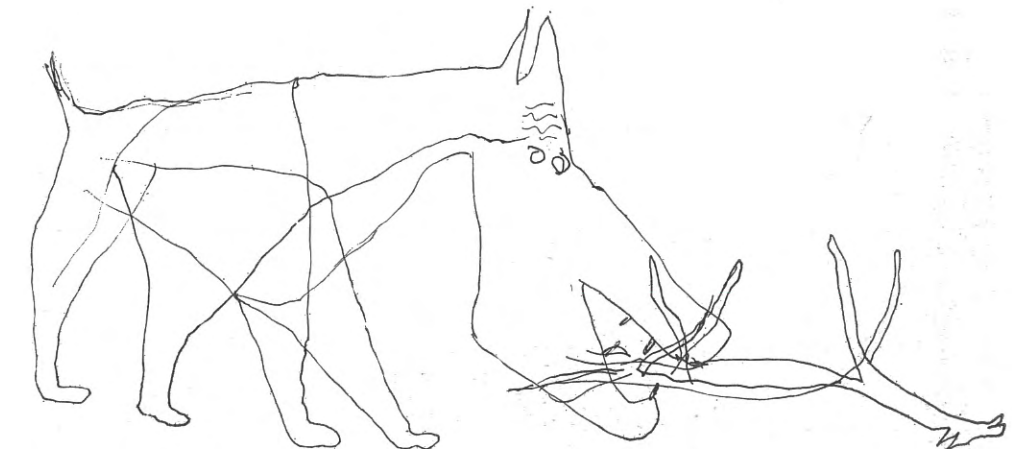
Drawing
 from the Theory of form and figuration. 60/118.



1939/ Estate 016: Untitled.
Coloured paste. 52.9 x 37.

¹ Cf. Active, passive, medial:
Volume 1, pp.103, 115–116, 435.

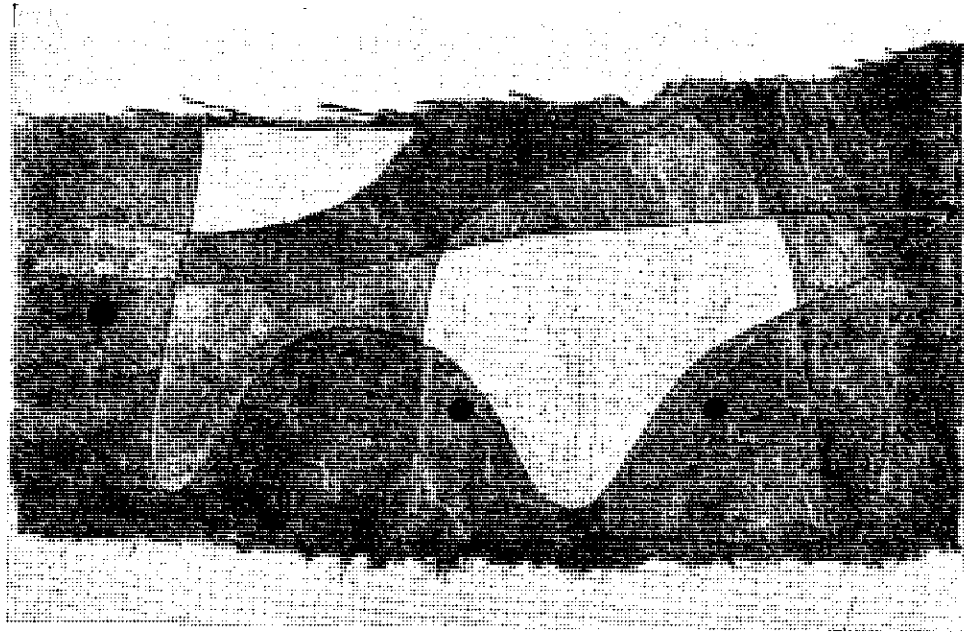
Drawing
from the Theory of form and figuration. 7/60.



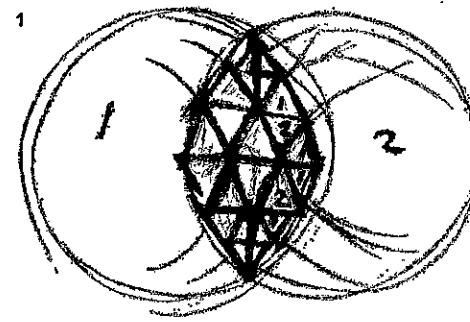
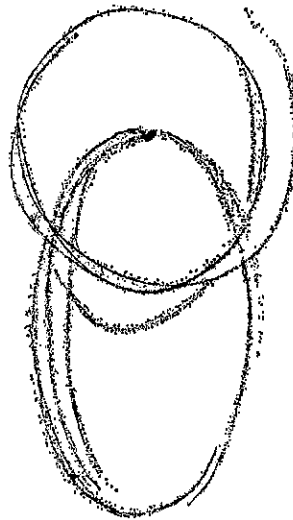
I shall endeavour to bring home to you as closely as possible the proportions that play a part in your own body. Imagine that you wish to draw close to you an object that offers resistance to such a movement.

You first fix your eye on it and envisage the path the object must take. Then you seize it and force it close to you. So long as the object offers no considerable resistance, this seems to take place quite simply, with respect to our awareness. Our willpower accomplishes it all, as we clearly sense. Yet soon, e.g. if the object is very heavy, we note that our will is not all that autocratic. At this point we become aware of our arm, which must make a rather considerable effort, ultimately even painful.

- [1] Form structure (two equal elementary forms).
Two formal elements of like kind, with mutual cession of territory. 7/45.
- [2] Form structure from unequal elementary forms.
Three circles with equalised parts relinquished. 7/122.
- [3] Mutual effect of two forms of like kind.
Peaceful adjustment or unequal surrender of elementary territory. 7/54.

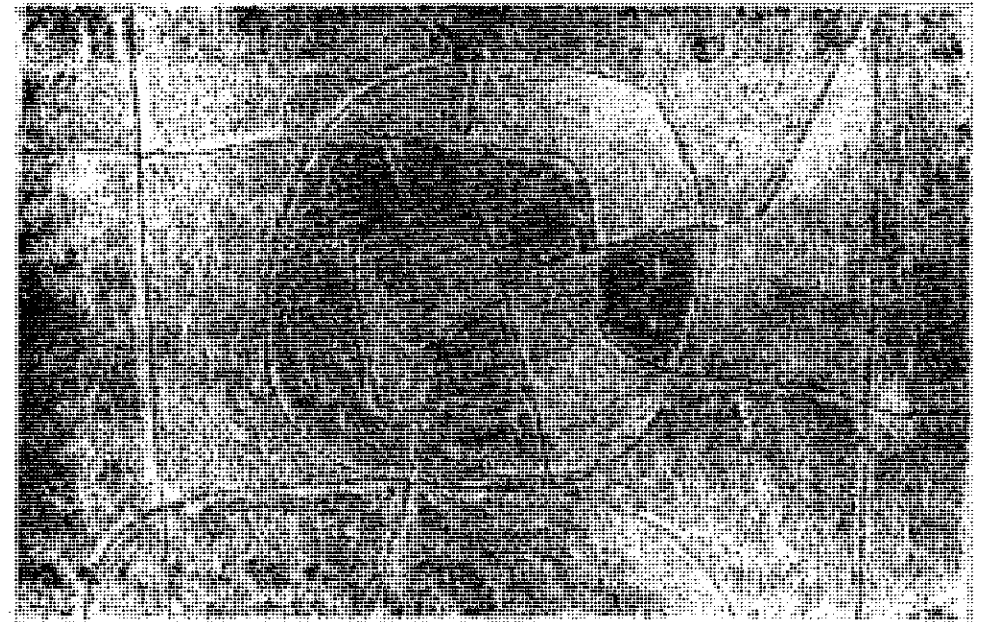
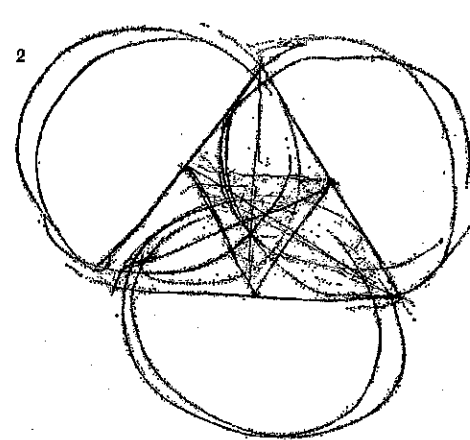


1932/x 2: *A scrap of community*.
Watercolour on plaster-grounded burlap. 18 x 36.

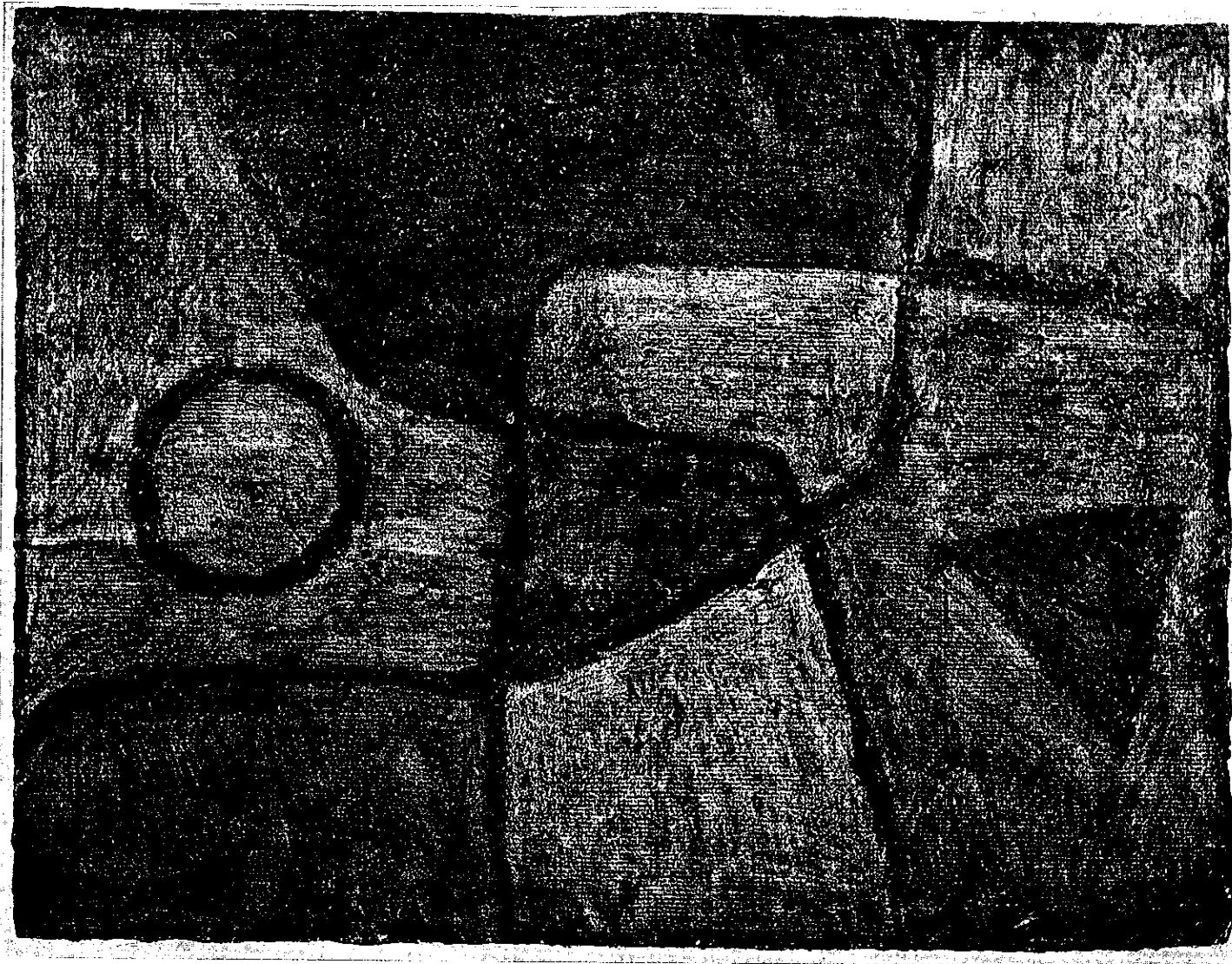


Possibilities:

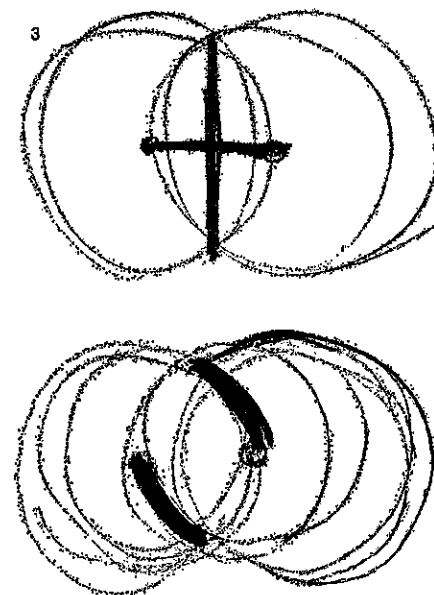
'Several unequal forms, interpenetrating. Representation constructive or impressive. One above the other or side by side. Organism organically interlinked from main forms or bodily-spatially permeated.'



1933/H 9: *Child Ph.*
Pastel on white-grounded paper. 21 x 33.

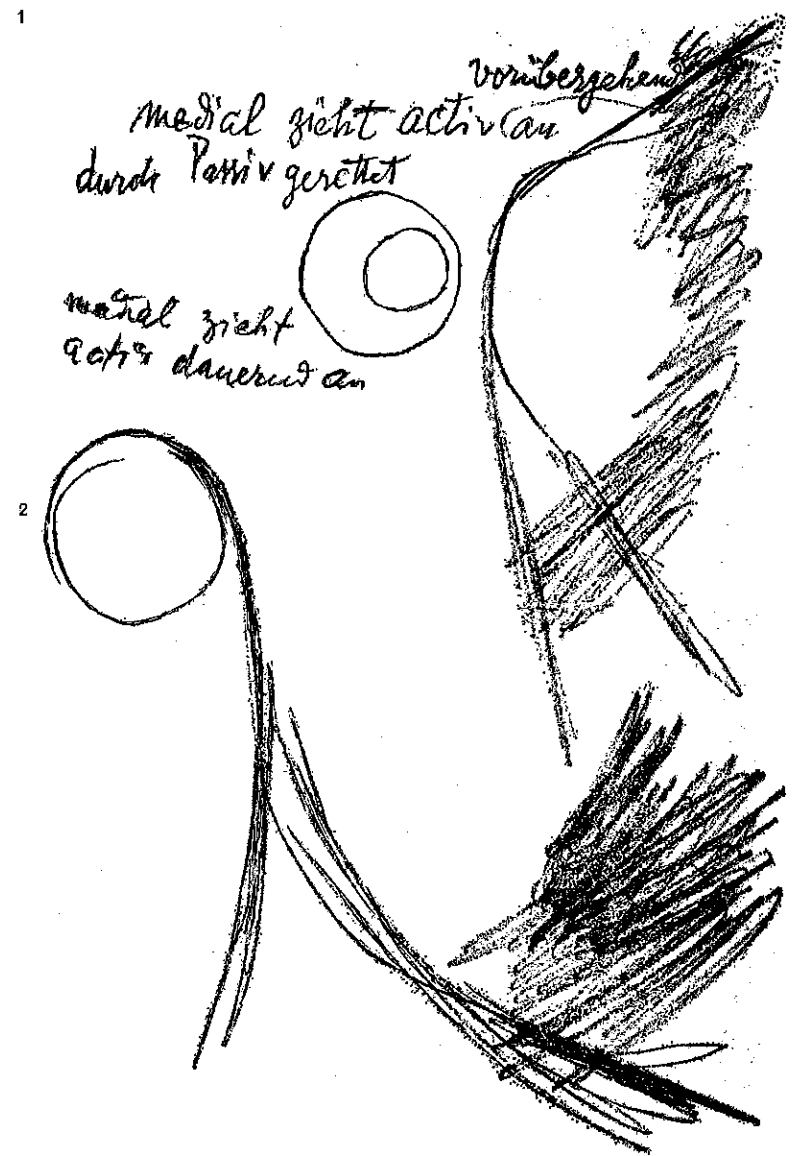


1933/G 20: *Hot place*.
Pastel. 23 x 31.5.



Active-passive: Cause, effect and mediation.
Possibility of simultaneous figuration of several
mutual relations and their equilibrium.

[3] 'In the common territory, the two contracting
parties enjoy equal rights.' 7/54.

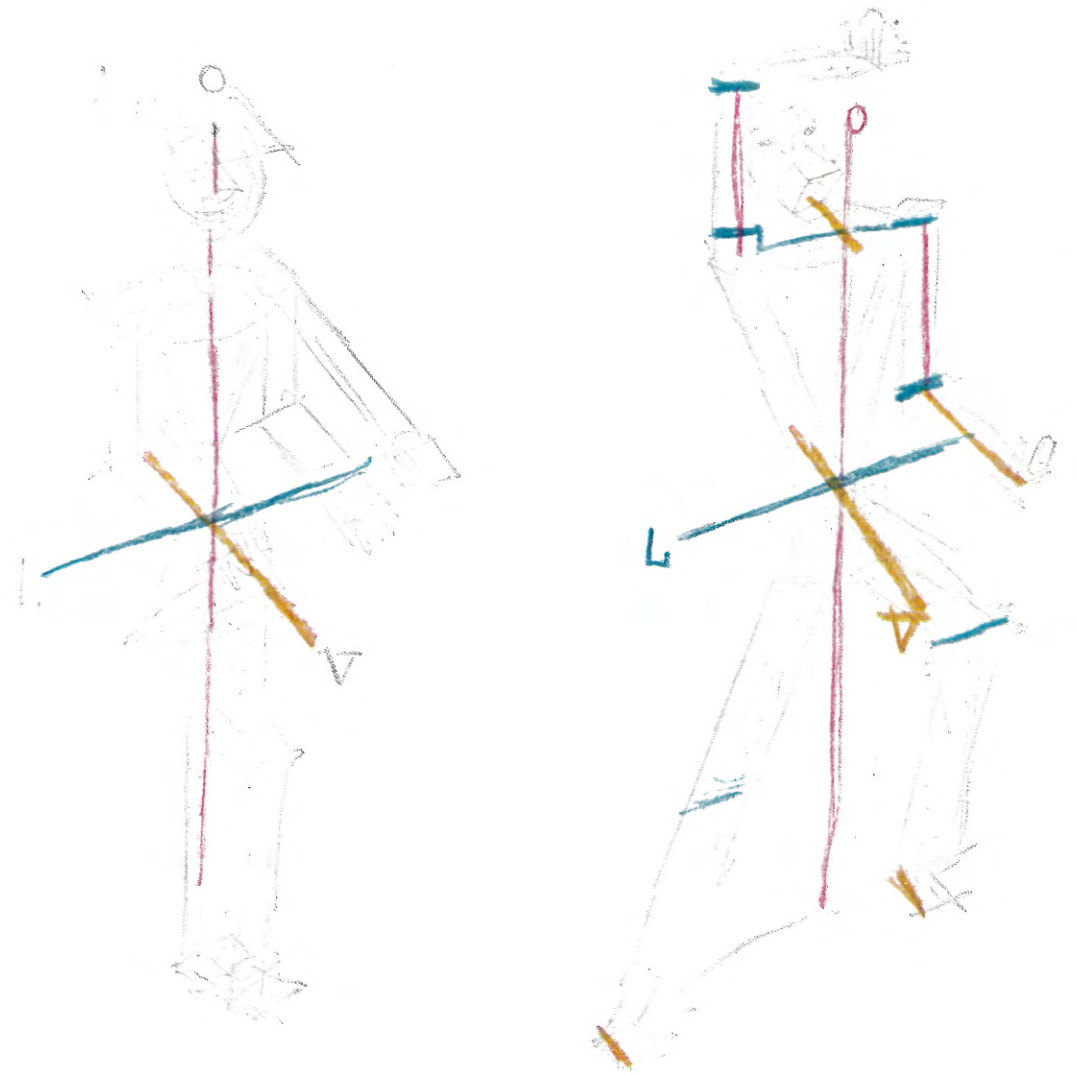


[1] Medial fleetingly attracts active, is saved by passive.
[2] Medial continually attracts active. 45/87a.



1940/Estate 020: Untitled.
Coloured paste. 65.1 x 49.9.

What is active, therefore, is not merely the will but the means for movement. Two main parts in the necessary action thus enter into a relation to one another, the means for movement not being a thing of primitive uniformity, but in turn a composite concept, organised on its own. Namely muscle and bone, things of different structure and function: muscles – elastic tissue; bones – firm hard structure.



Human body and dimensions. Drawings from the
Theory of form and figuration.
20/28.



1939/ZZ 12: *Brotherhood*.
Pencil. 21 x 29.5.

Means as such
Will,
means,
muscle,
bone

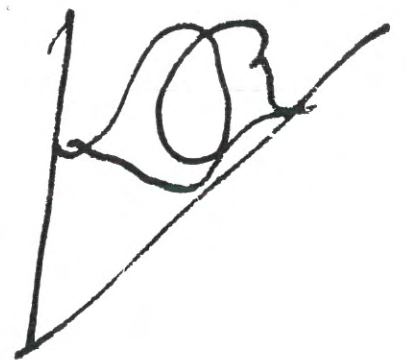
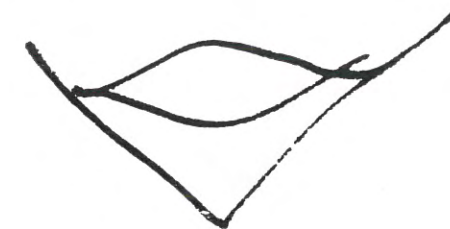
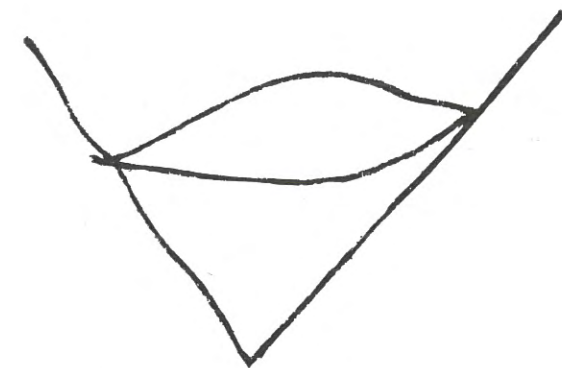
The functioning of the two
differs as follows:
A muscle
connecting two bones
contracts,
altering the angle of the
two bones.

Will

Mittel

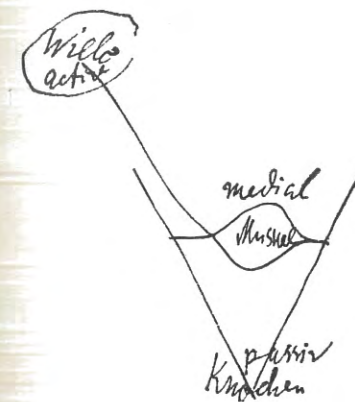
Muskel

Knochen



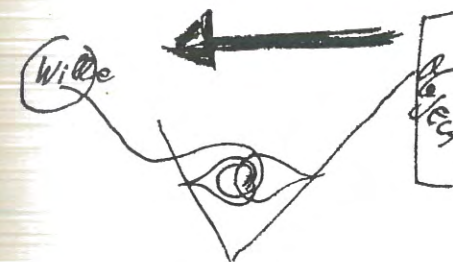


1939/690: Omphalocentric presentation.
Coloured paste on silk on jute. 70 x 50.5.



Bones have no inherent movement potential, but muscles do carry such a force, or at least they exert it. Actually, they receive this energy from elsewhere, as a command, so to speak. Our movement proportion is thus organised into three different parts:

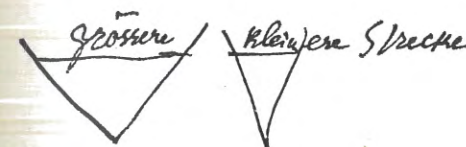
Will, active,
Muscle, medial,
Bone, passive.



They partake of the active, medial or passive character.

A proportion with the contrasts:
superior – inferior
lying over – lying under

Will, object.



The object must take this way, i.e. a longer distance must become a shorter one. In other words, measure. This is the proper category for the passive action of bone as well.

Greater, smaller distance.



The object, therefore, is no new link in respect of its character, but is identical with bone. Muscle is initially extended, thin, lighter, then, when contracted, denser and heavier. In other words, weight.

The brain, as an activity, alters in a different way, immeasurable and imponderable. It is a refinement of action, which I should like to call quality. Expressed by our ideational means of figuration: colour, tonality, line.

Colour, line, tonality.



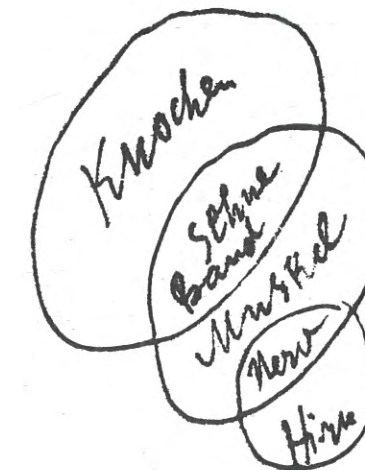
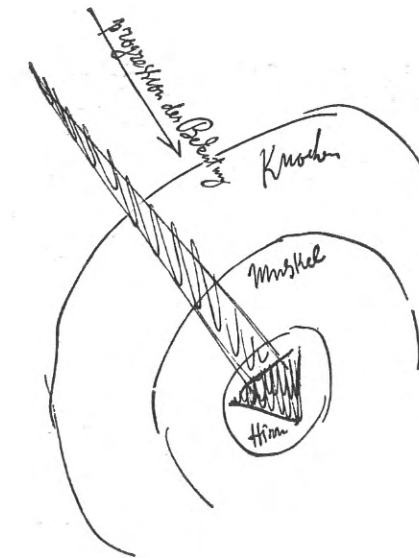
1923/91: *Man in love*.
Lithograph with red tone plate, second state.
27.4 x 19.

Progression of meaning.
Bone,
Muscle,
Brain.

Bone,
Tendon,
Ligament,
Muscle,
Nerve,
Brain.

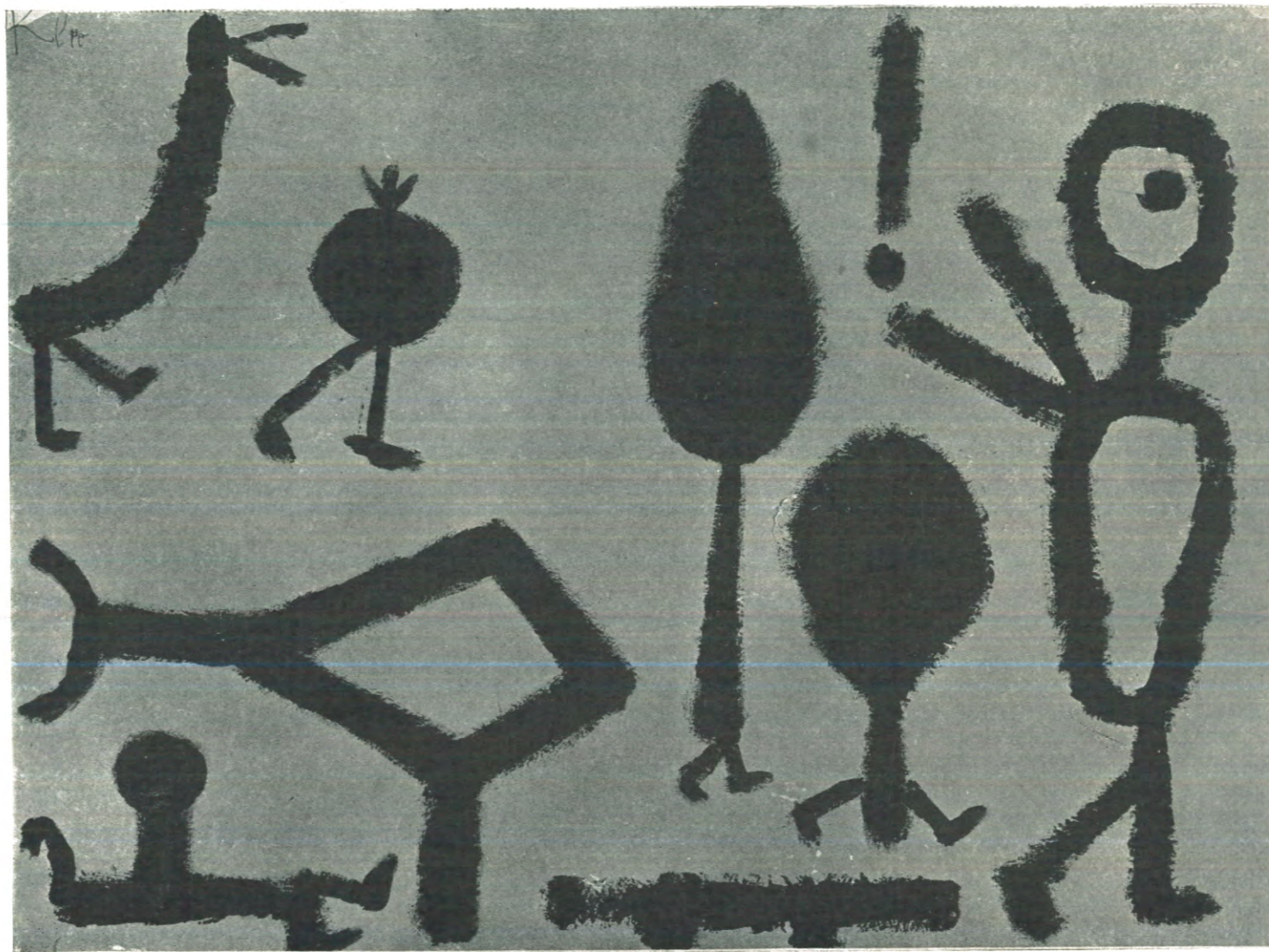
Cf. 'The concept of structure in nature', Volume 1, p.333, and 'The natural motor organism; the striving for movement, and its execution', Volume 1, pp.336-340.

We may, as innocently as possible, conceive a scheme converging towards a centre, carrying out a progression of this meaning, the centre comprising precisely special forces.



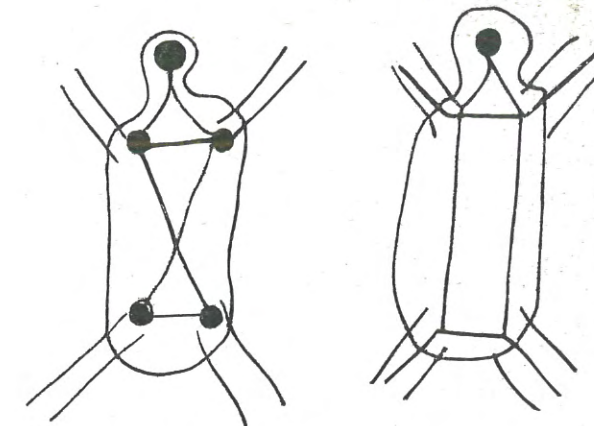
Obviously there are still intermediate links, even here. Nerves run from brain to muscle, muscle and bone are linked by tendons, bones among themselves are linked by ligaments.

This action just depicted serves man's outward form by way of partial action. It is a structural idea from within, in this case the pathway from headquarters (the skull) to the extremities.

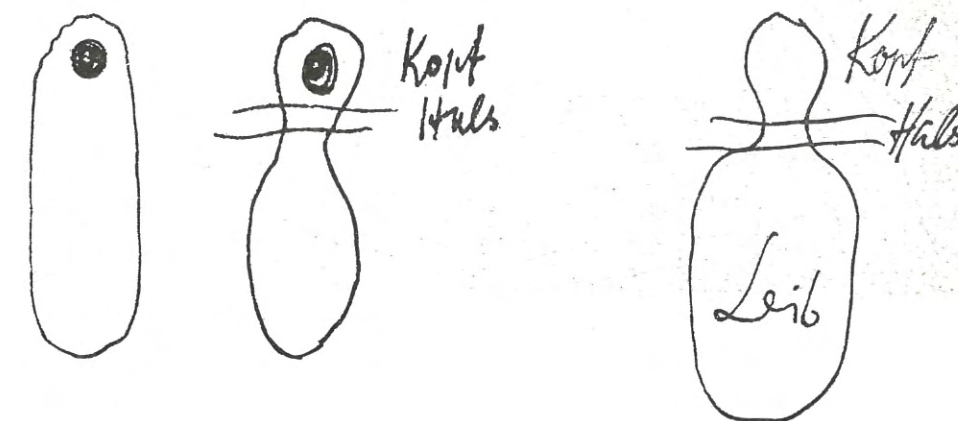


1940/OG 5: *Everything runs after!*
Coloured paste on paper. 32 x 42.5.

Head, body, limbs

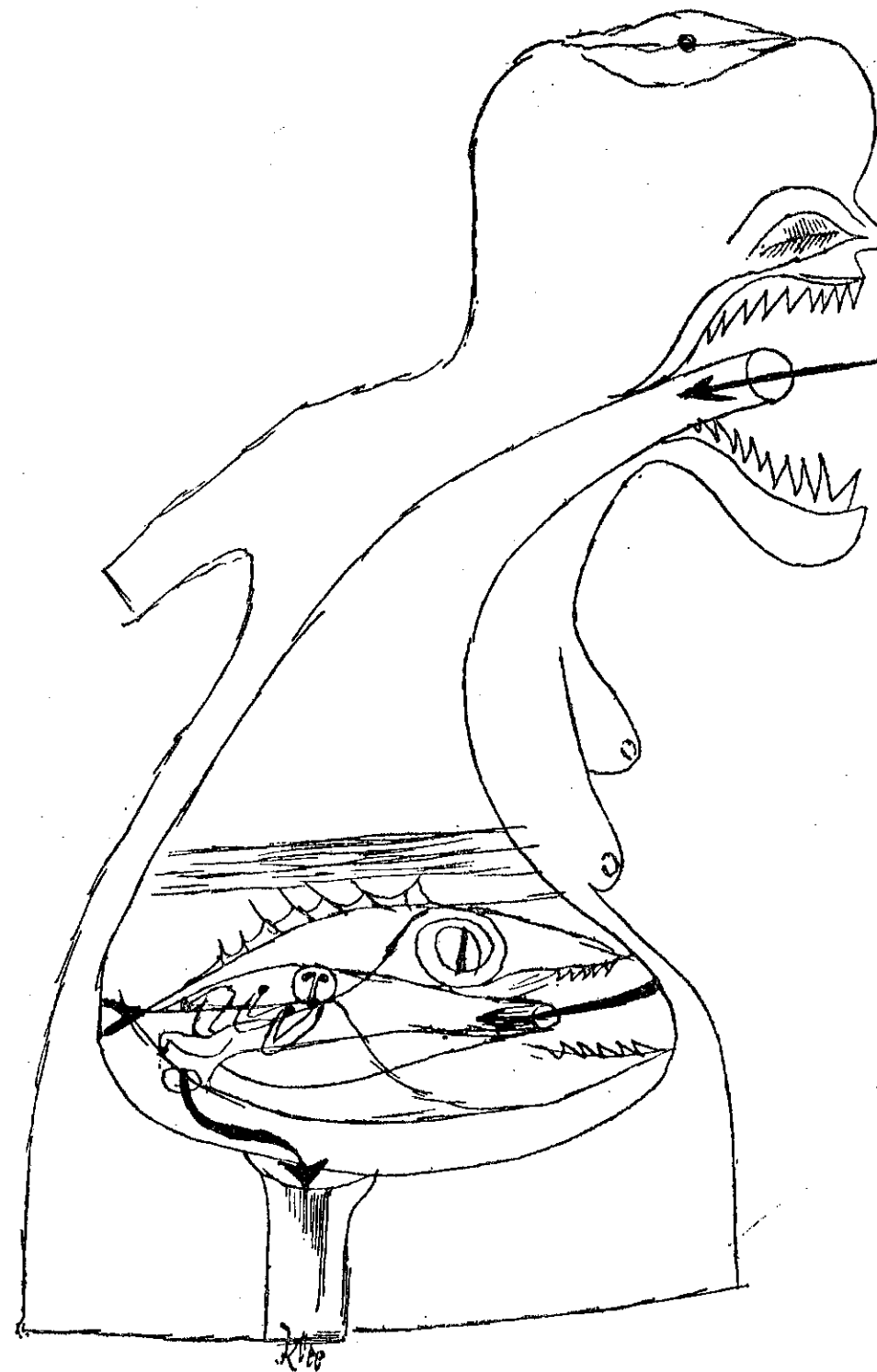


Let us initially ignore the limbs and consider the body in its outward state of rest. Since at a pinch one can live without arm and leg, a series of animated internal processes, capable of organising head and body, takes place. The head, of course, is always essential.



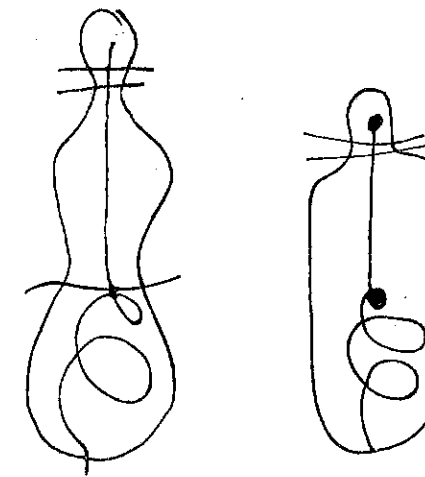
Pages 9/25a, 9/27 and 9/27a are crossed out in the manuscript and repeated elsewhere in new versions. Cf. the cut text part in the appendix. The figuration examples are consolidated whenever they display only minor differences. Cf. note in the appendix.

It is the chief organ, headquarters and main guardroom, with a lofty view for the waking function, installed as high as possible and mobile for better outlook. And we have: Head, body, with the connecting link of the neck.

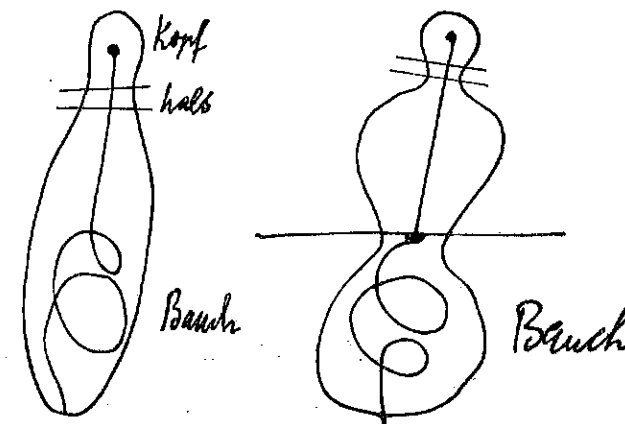


1920/99: *Man-fish-man-eater*
Drawing.

Further:
Food intake
(and outgo)

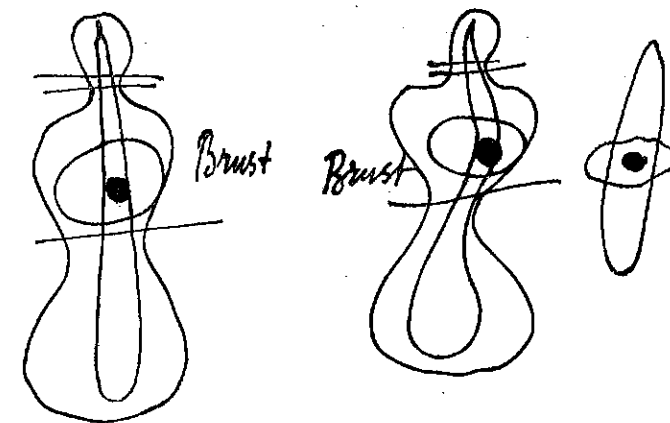


provides body articulation
by the dividing point of the
stomach, yielding a
division into upper and
lower body.



Abdomen

Further:
Utilisation of food intake;
blood channels.
The lesser circulation
leads to the concept of
chest.

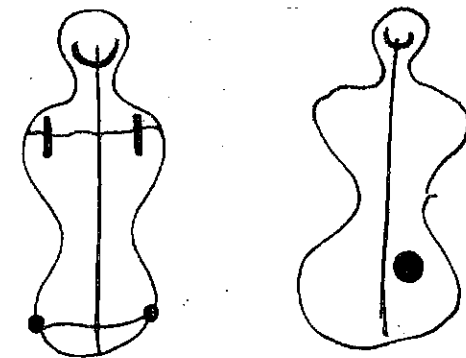




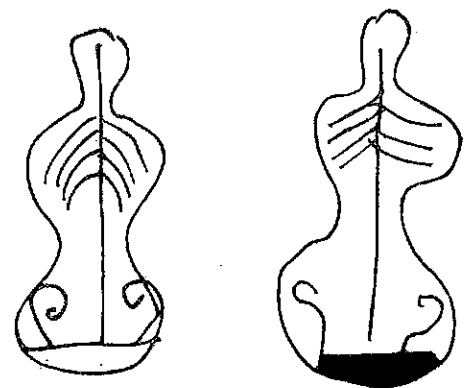
1930/Ae 8: *What ails him? II*.
Stamp drawing, 55.7 x 34.1.

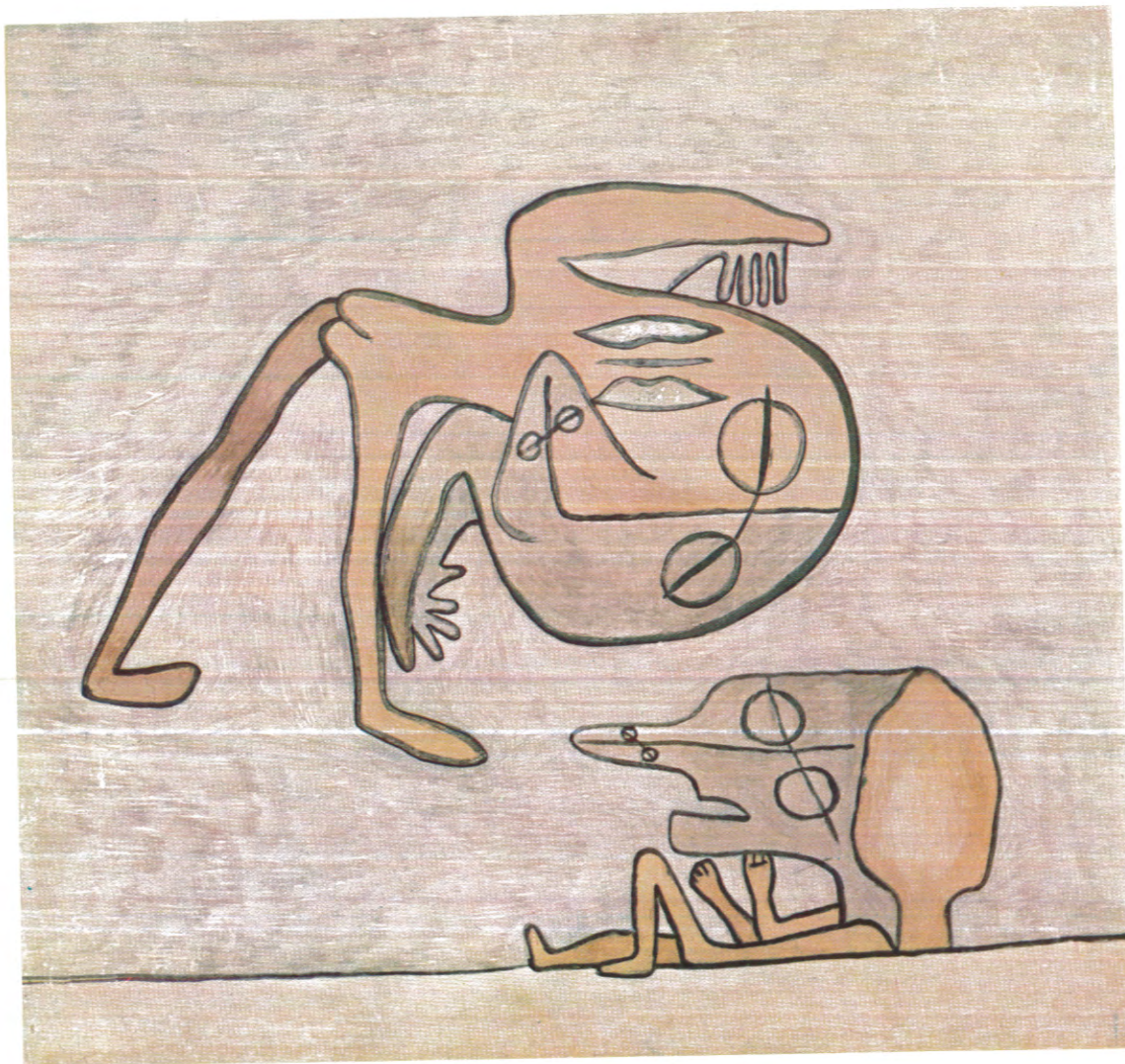
² Crossed out: 'and buttocks'.

The wakeful and vigilant function of the head leads to the body's upright stature. Concept: body musculature in concert with body bones, first of all the spine,



then basket and basin-shaped structures, reinforced chest, strengthened seat.¹



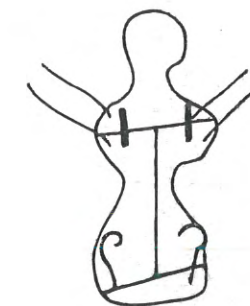
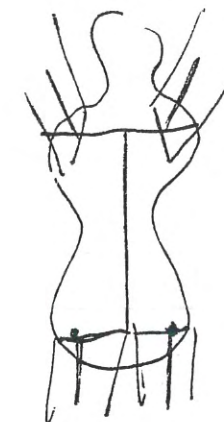


1932/x 18: *Lethappen I*
Oil, 59 x 61.

Increased alertness above leads to the standing position.
Complexity of structure.
The spinal column rests on a bridge.

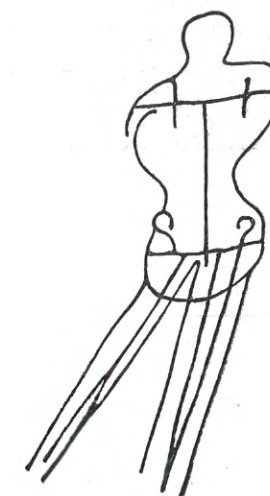


Increased reach in the seated position:
Arms and arm movements.
Shoulder,
bones and musculature.

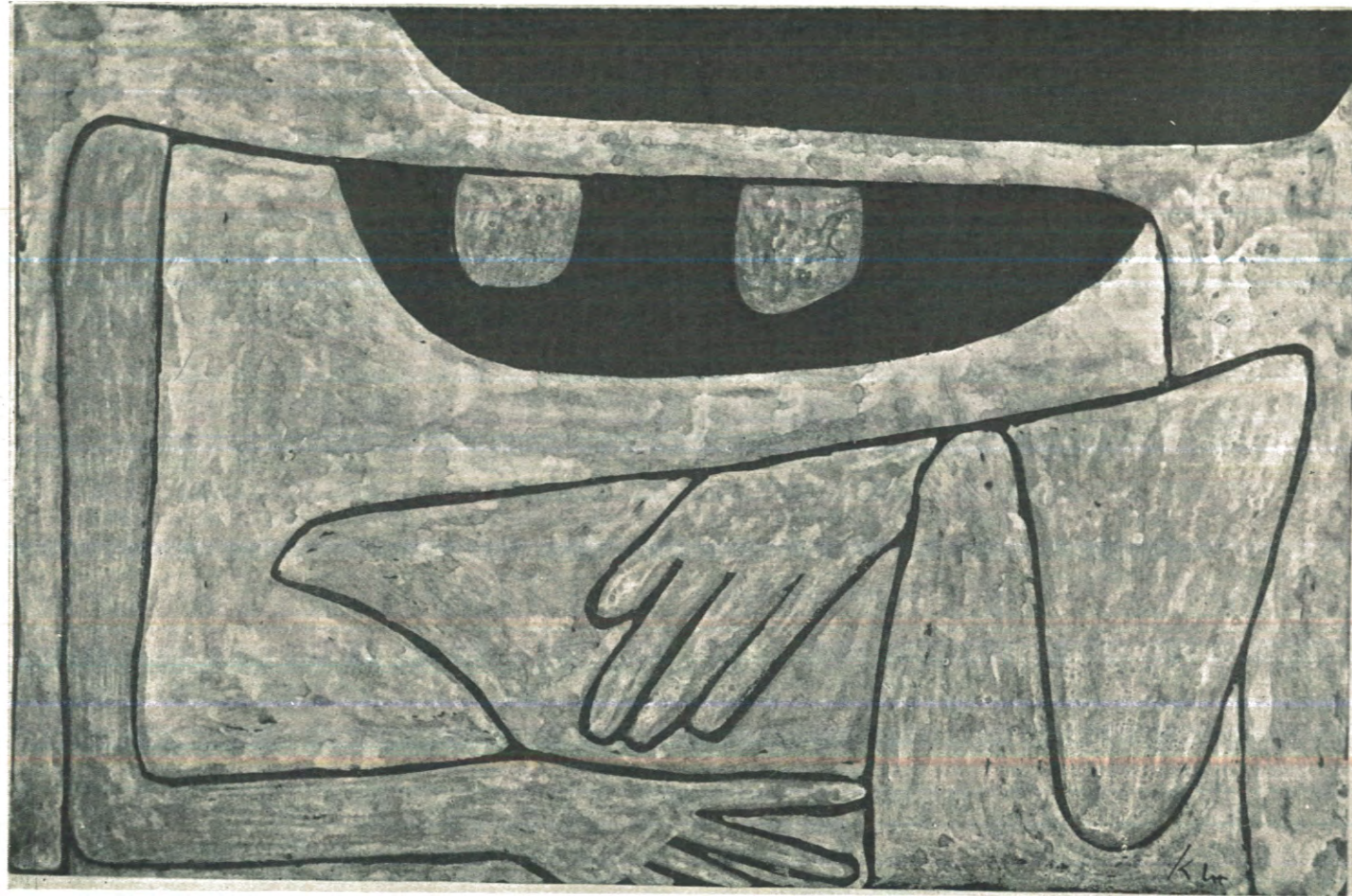


Ultimate bodily reach:
walking and running.
Hip joints,
moving legs.

Ultimate enrichments
(complications)
of articulation are the result
of the division
of arms/hands
and legs/feet.

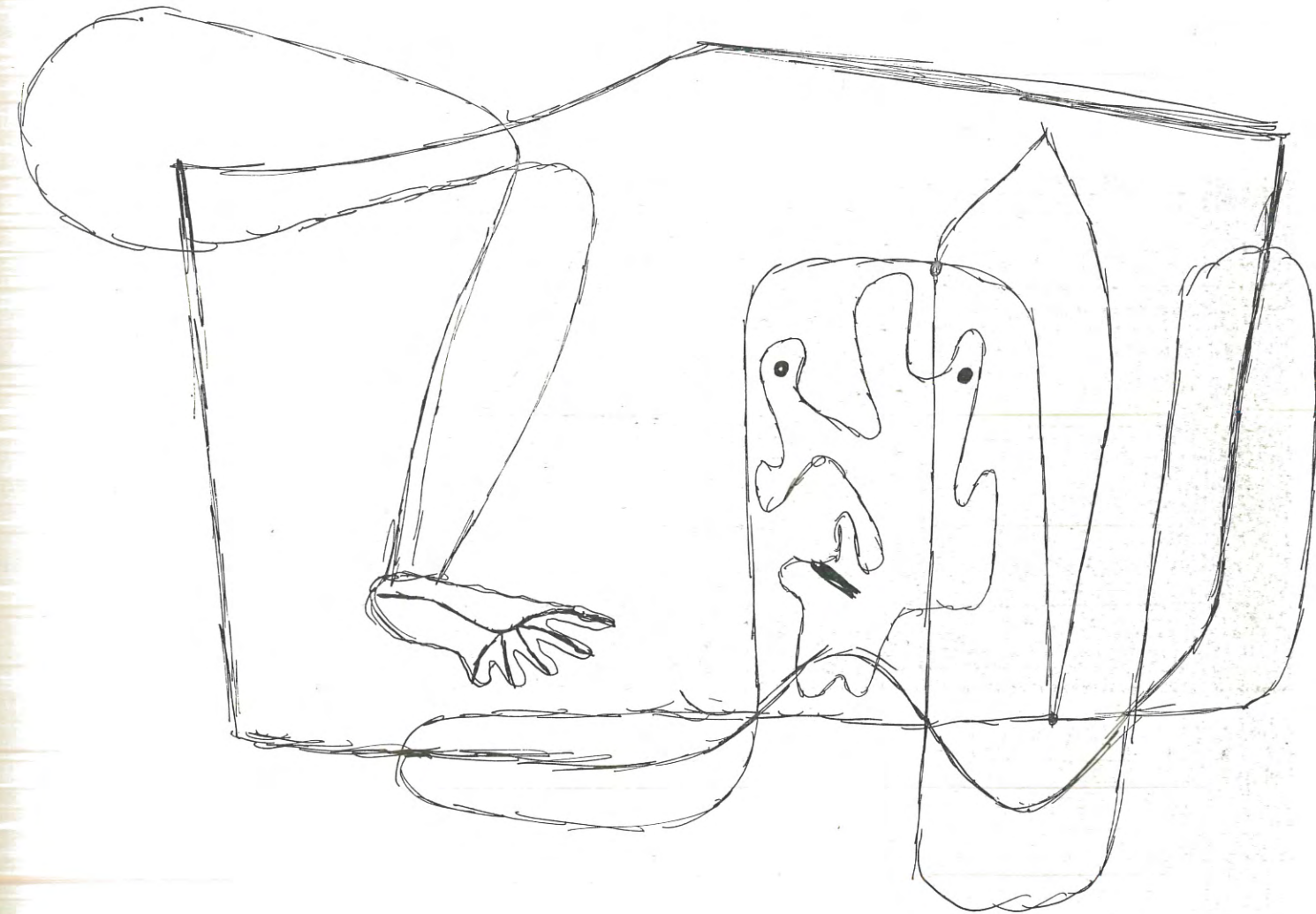


1939/ww18: *Daimonia*.
Tempera and watercolour on paper.
21 x 32.8.

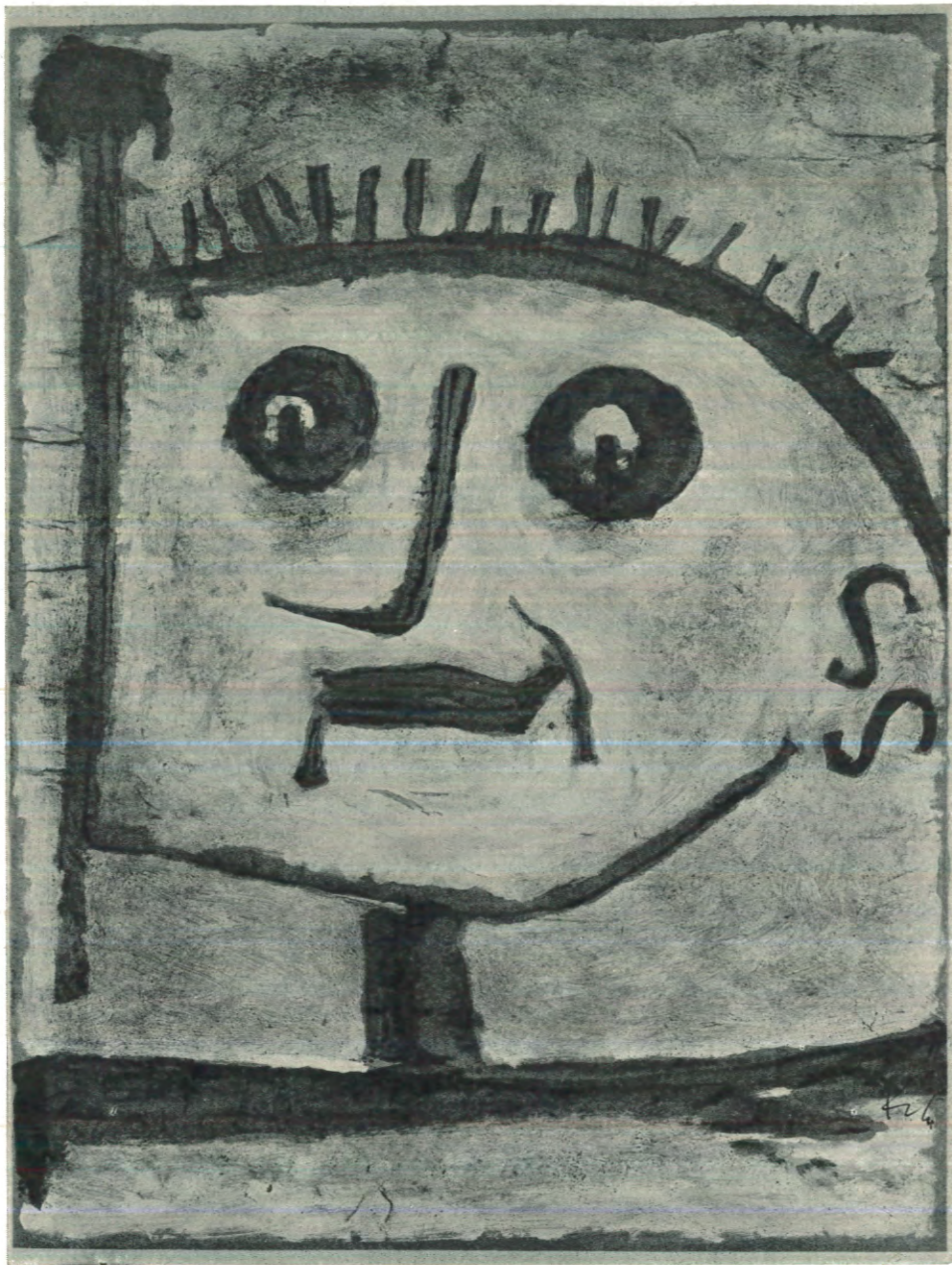


Free form-giving example from the
Theory of articulation. IV/103a.

¹Cf. 1931/m 7: *Figure*. Volume 1, p.383.

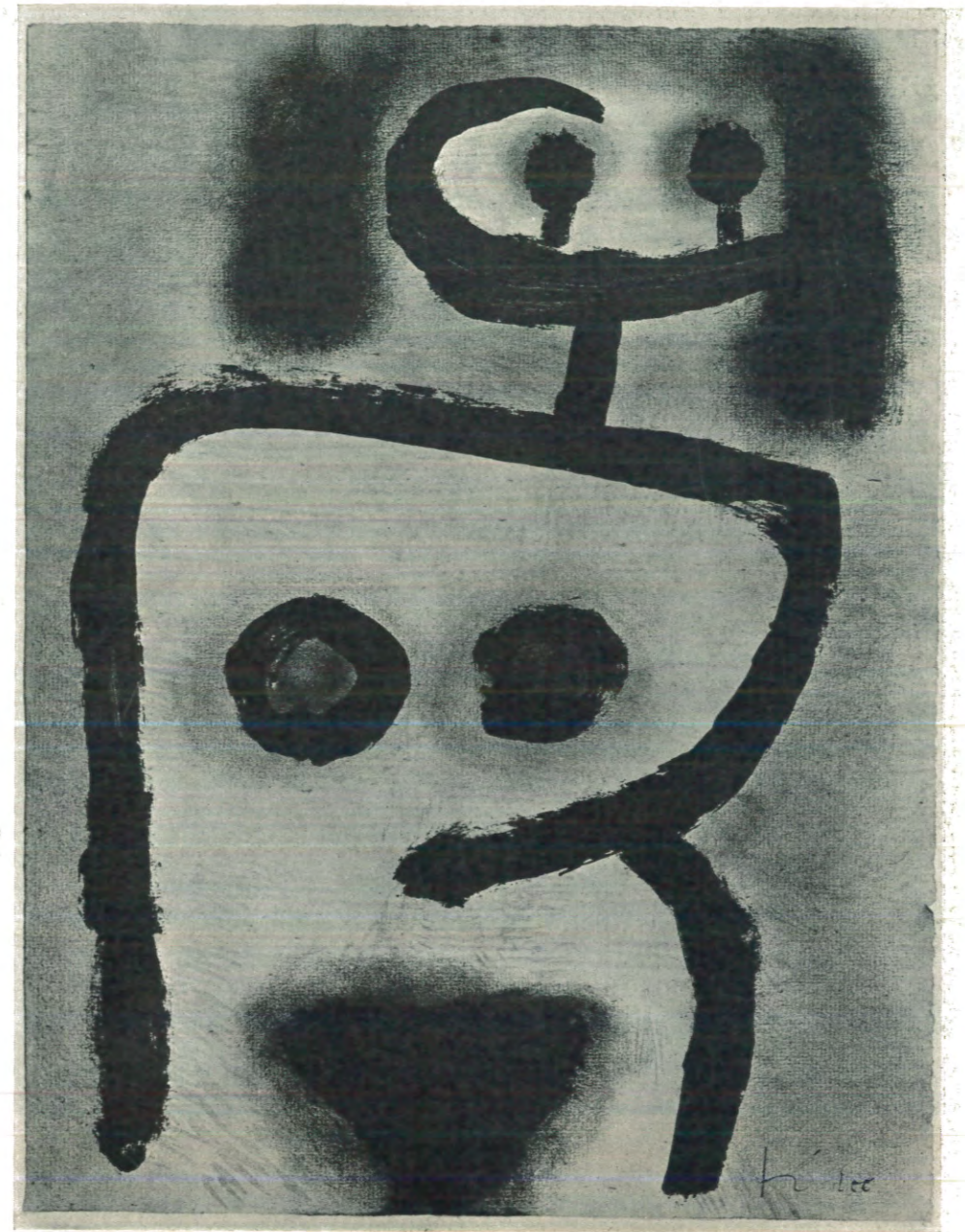


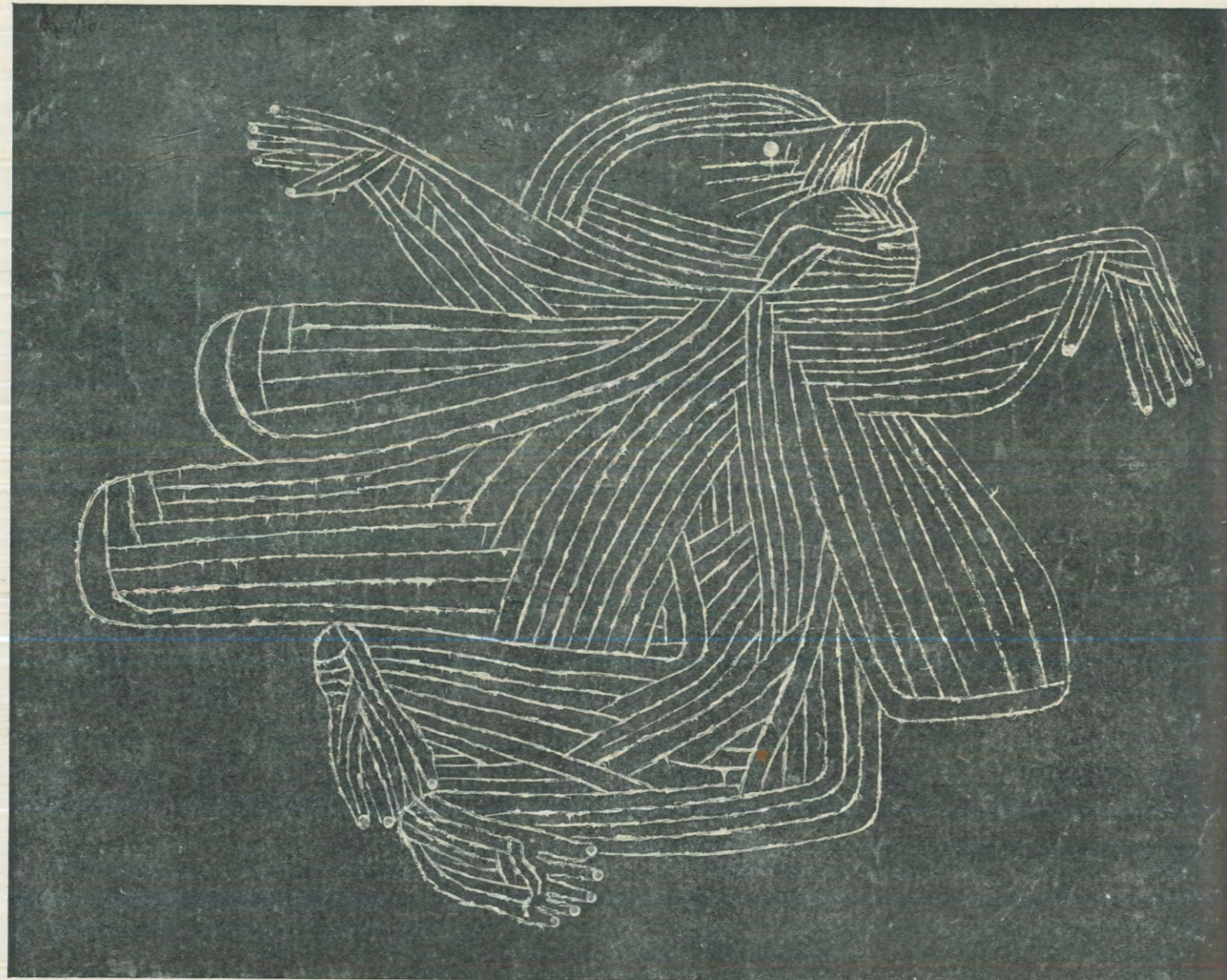
You like that? I have no objections. I do ask that you take serious account of the path that has been followed, of the forming of this organism from its essence.¹
Then this brief endeavour will find its meaning. Figuration as the way from demand to finished form.



1939/GH 8: *Voice from the ether: 'And thou shalt have thy fill!'*
Oil and tempera on paper. 50.5 × 38.

1939/Hi 19: *The body too has a countenance.*
Coloured paste and oil on paper. 31 × 23.5.





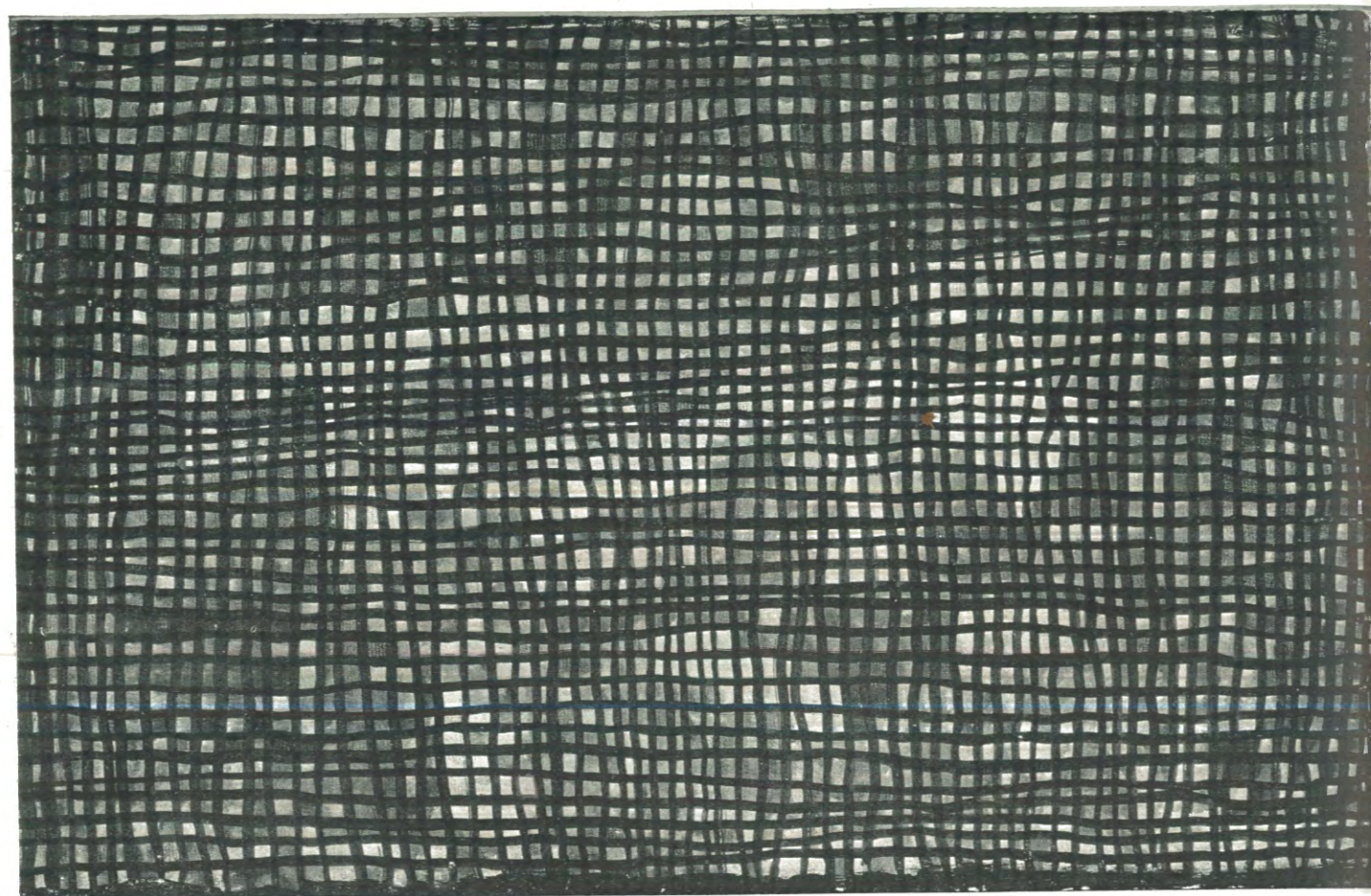
1934/U 13: *The creator*.
Oil on canvas. 43 × 54.

1924/252: *Actor's mask*.
Oil. 36·8 × 31·8.



Figuration examples for the required exercise:
'Lively figuration of an individual proportion and both
elements of articulation, the individual or structural
and the higher element, the two in some form of
combination.'
1924/252: *Actor's mask*, oil.
1934/U 13: *The creator*, oil.
Linear analysis from 1929/n 9: *Coloured woman*, p.220.
1929/s 9: *Old man reckoning*, Etching. Volume 1, p.236.

This afternoon I should like you to continue the exercise we began last time. And this time I want to see not only lively figuration of an individual proportion but treatment of both elements of articulation, the individual or structural and the higher element, the two in some form of combination. The remarks I am about to make are intended to give you courage, for they will show how simple the matter really is. I ask, however, that you do not slavishly follow the schemes that are shown but merely take them as models for your own vivid creation. They are to serve merely to give you ideas.



1931/R 20: *Colourful life outside*.
Watercolour on egg-grounded paper, 31.3 × 48.8.

¹ Crossed out in the manuscript: 'Now what about the solution of such problems?'



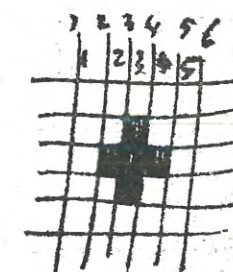
1

Dividual and individual structural elements
Representation of dimension and weight
Physical and imaginary integration of the limbs of an individual
Structure and lack of structure
Dividual-individual synthesis
'Self-experienced' structure

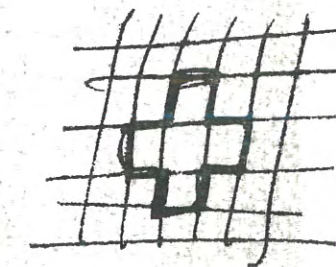
Dividual and individual structural elements¹



1



2



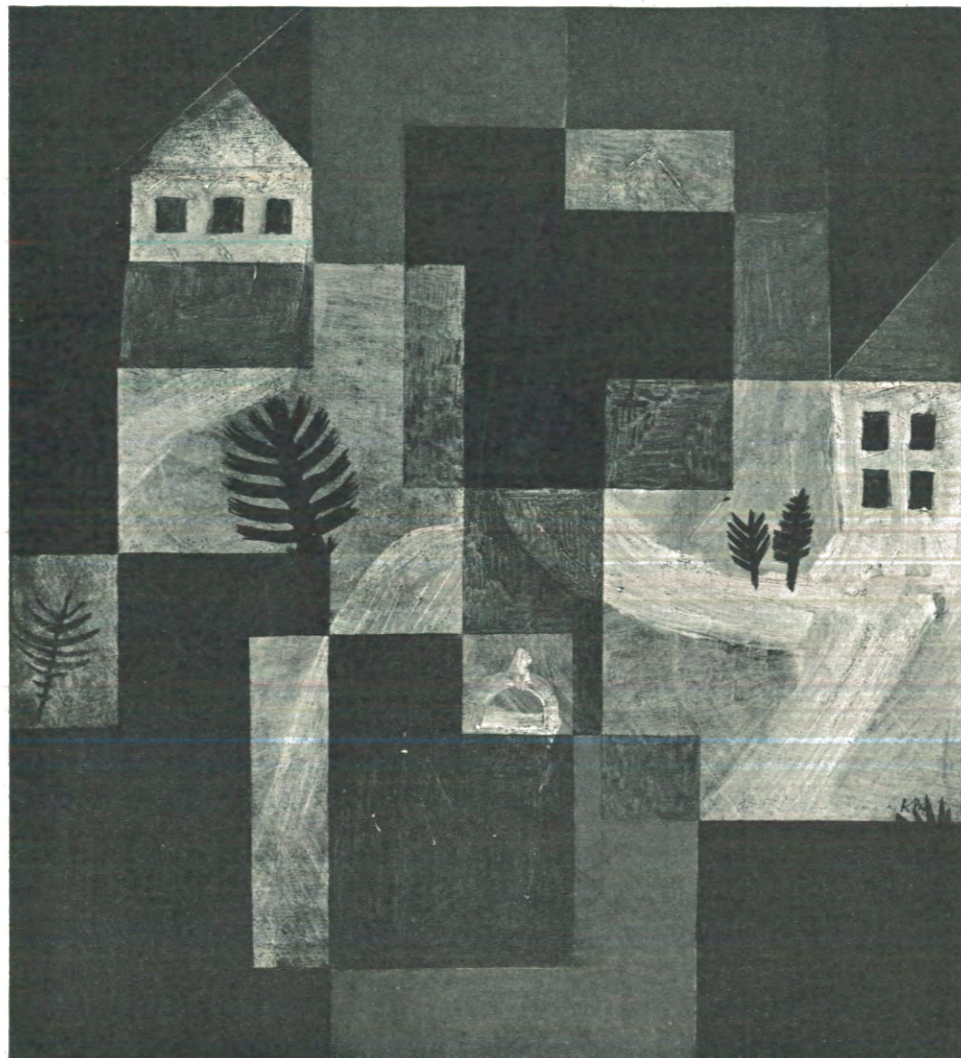
3

I shall show you some cases, in which the problem is posed both concisely and cogently.

1. A structural area of such small dimensions that any reduction or abstraction is only barely possible. Each structural particle has the same value [1].

2. In the centre of 2 an aggregation of particles establishes a new context. It is a pattern based on the structural grid of 5 × 5 units [2].

They are assembled in order to be able to hold their own against the structural grid and somewhat enhance its formal triviality [3].



1921/125: Chorale and landscape.
Oil on paper on wood. 35 x 31.

The individual pattern, called a cross,
now agrees quite well with the structural
aspect.

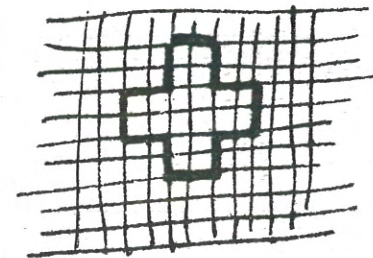
The two mesh.

Is this indeed an individual pattern?

Yes, an individual pattern of the
character of a regular cross.

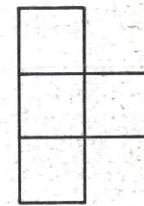
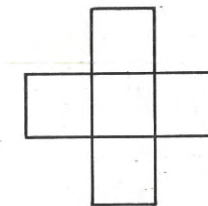
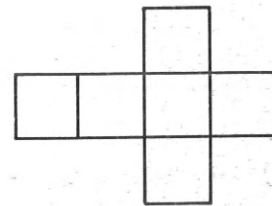
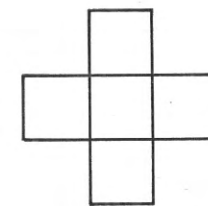
Structure has been shifted into a cross.

*Die Struktur
im Kreuz
verlegen*

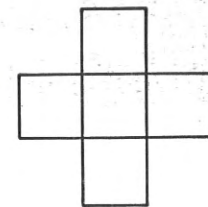


For I must add nothing or it becomes a
different kind of cross.

And I must take away nothing, or it
ceases to be a cross altogether.

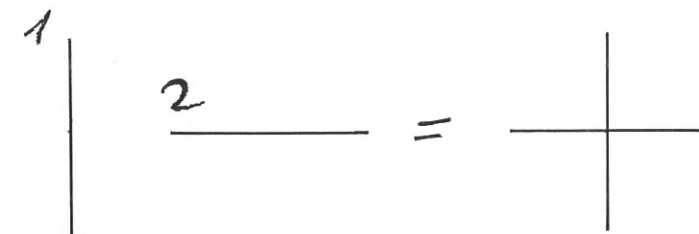


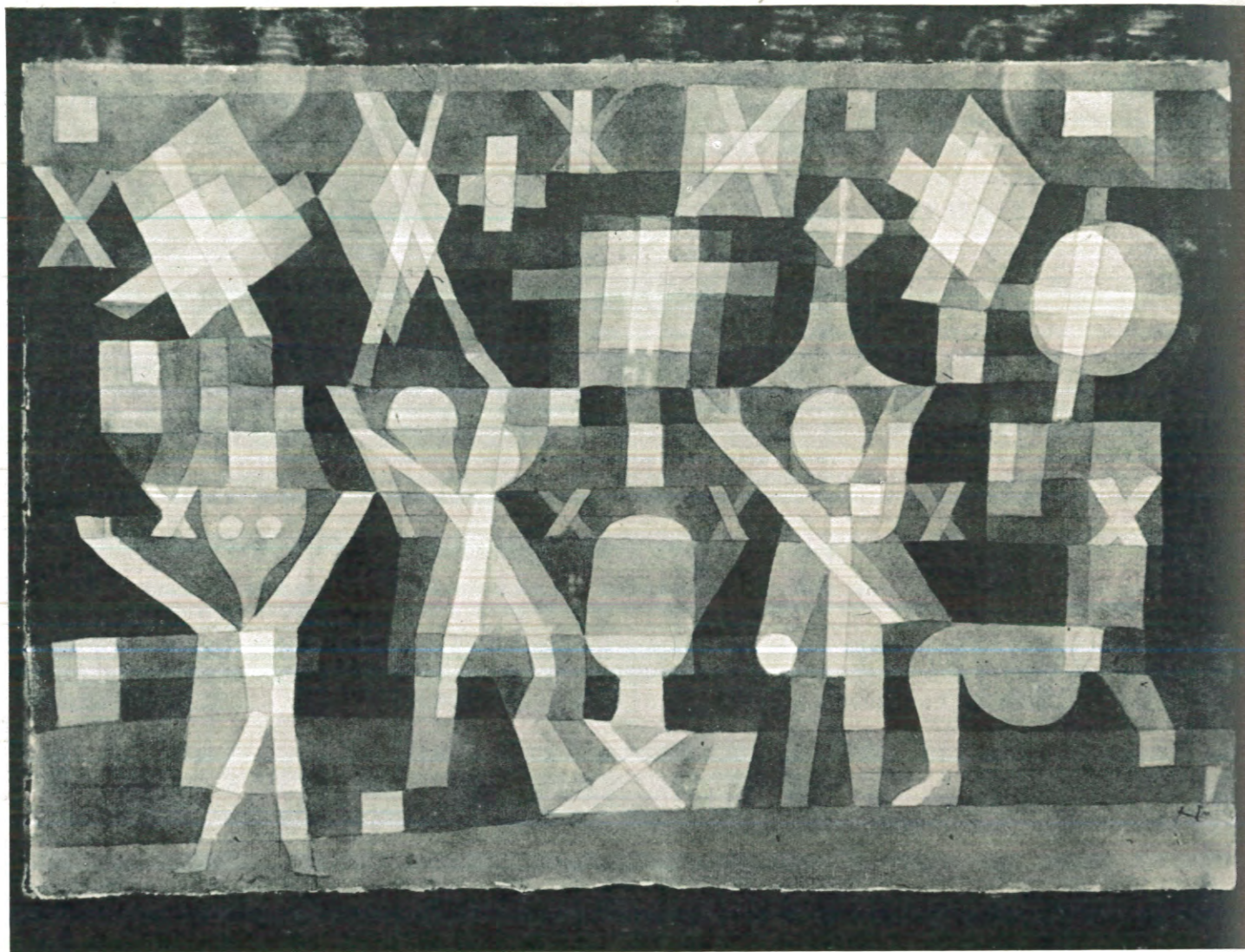
Seine Gestaltung ist als Formung



As an example of form, its articulation is:

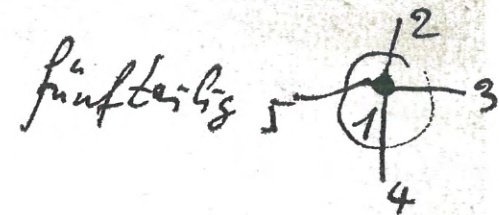
simplex, duplex,



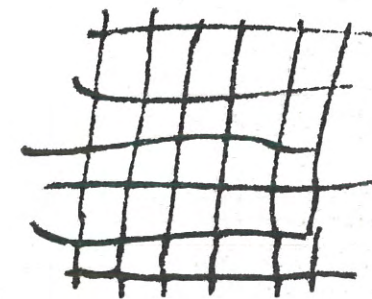


1923/159: *Group linked by stars.*
Oil and watercolour on paper. 32.5 x 48.5.

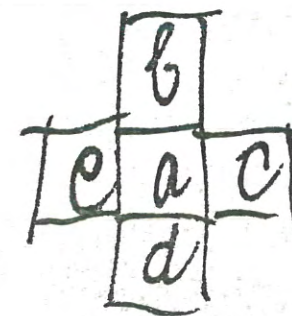
As a formal effect,
considering
the special significance
of the centre,
it becomes quinquartite.



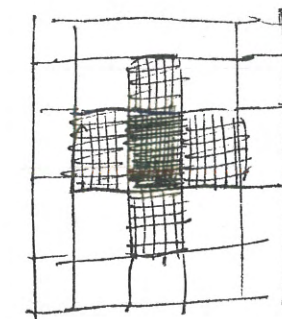
This scheme, however,
still constitutes no living figuration.
It would come rather more alive, for
example, by the logical inclusion
of pictorial means.
The structural part in scale
representation:

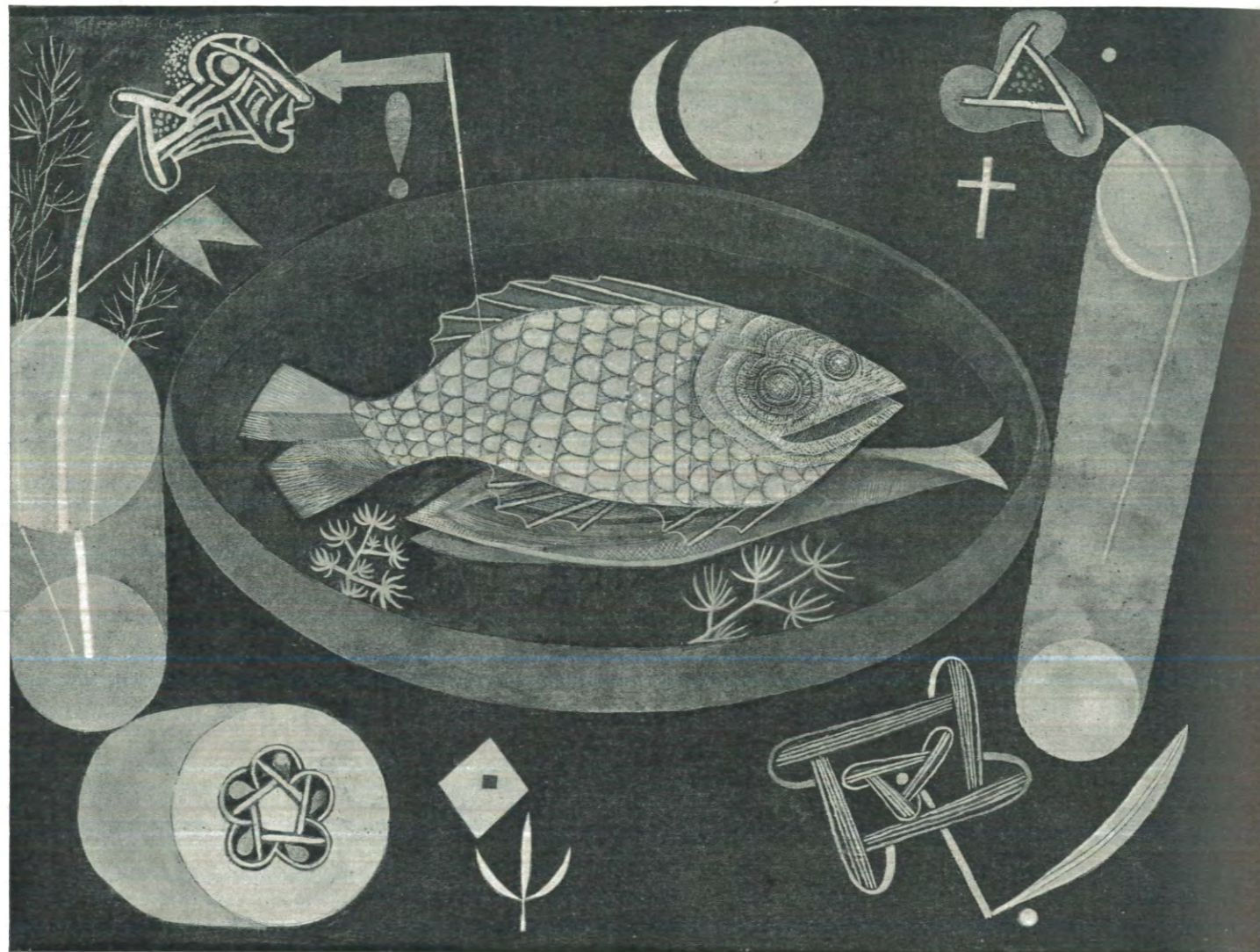


The individual part
in weight representation:
i.e. 4 parts:
b c d e half-weight
a full-weight



Or: Give tone to the
structural part,
e.g. light, medium or bright
and dark, perhaps in
chequer-board alternation,
the individual part, however, in colour.
Perhaps:
b c d e light red
a dark red





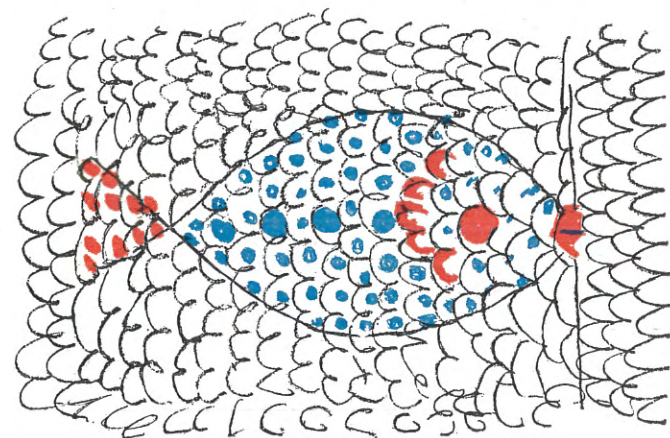
1926/124: *Round about the fish*.
Oil and tempera on muslin on cardboard. 47 x 64.

Another solution to the problem:
The structural and individual elements
might also be located by a process in
which the individual experiences a
structural articulation in his own body.

Vitally represented, say, by the weights
of univalent to quadrivalent tonalities,
with greater contrast at the centre
and less disparity elsewhere.

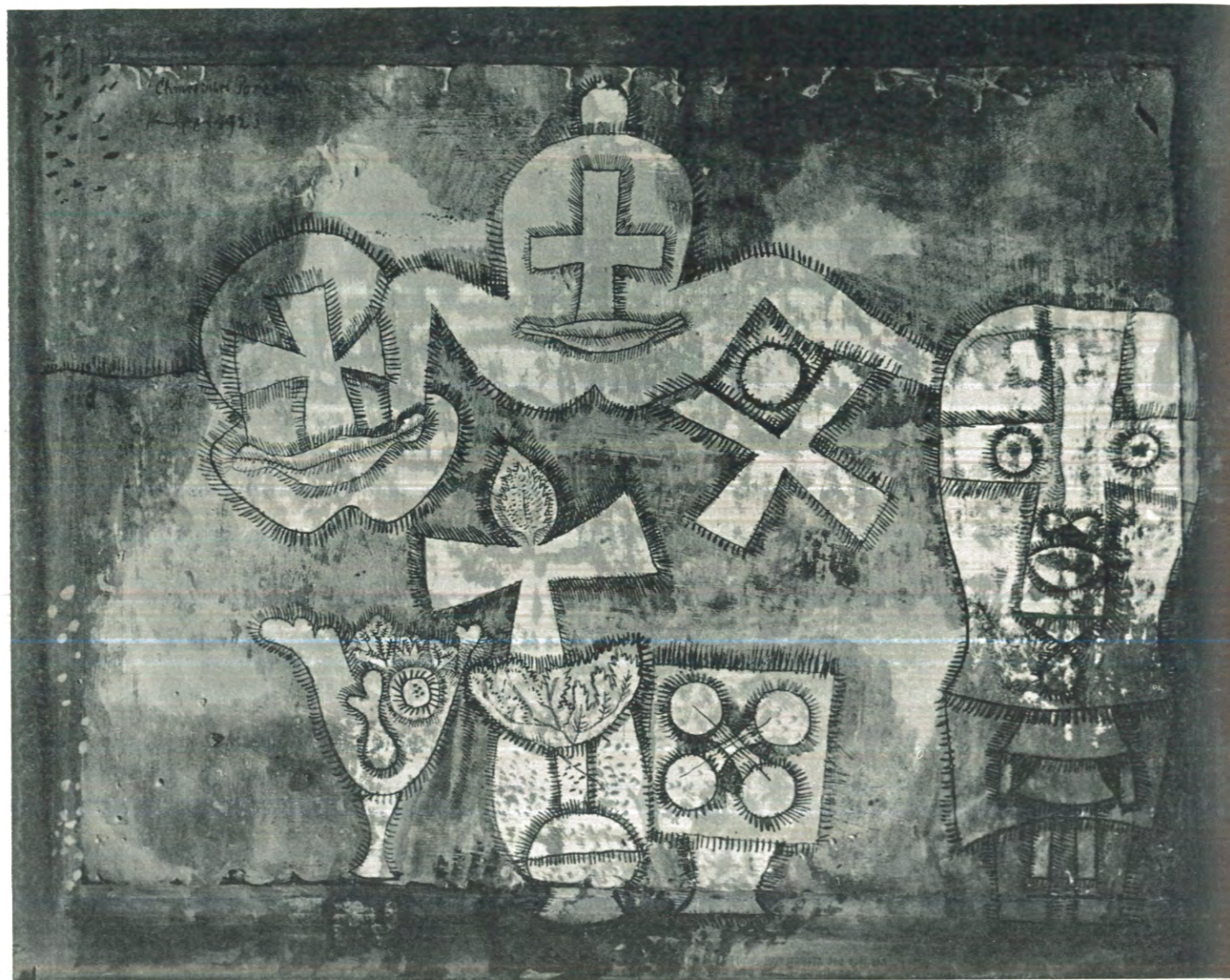
In the manner in which a fish has scales
on his own body. Colour IV/192a and
9/24c.

individual

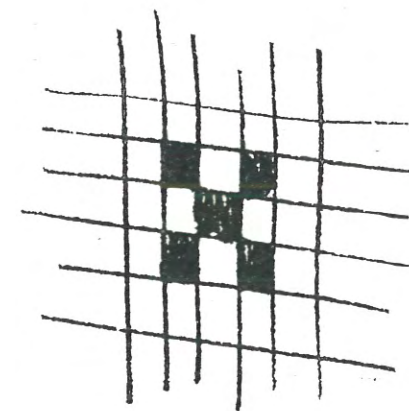
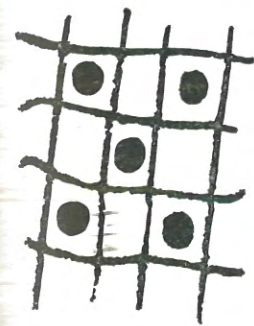


		2	3		
		3	2		
2	3	1	4	2	3
3	2	4	1	3	2
		2	3		
		3	2		

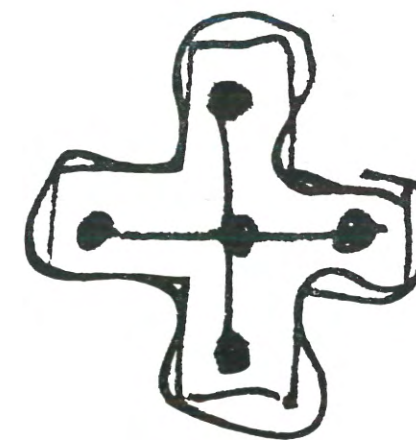
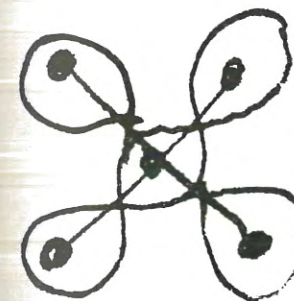




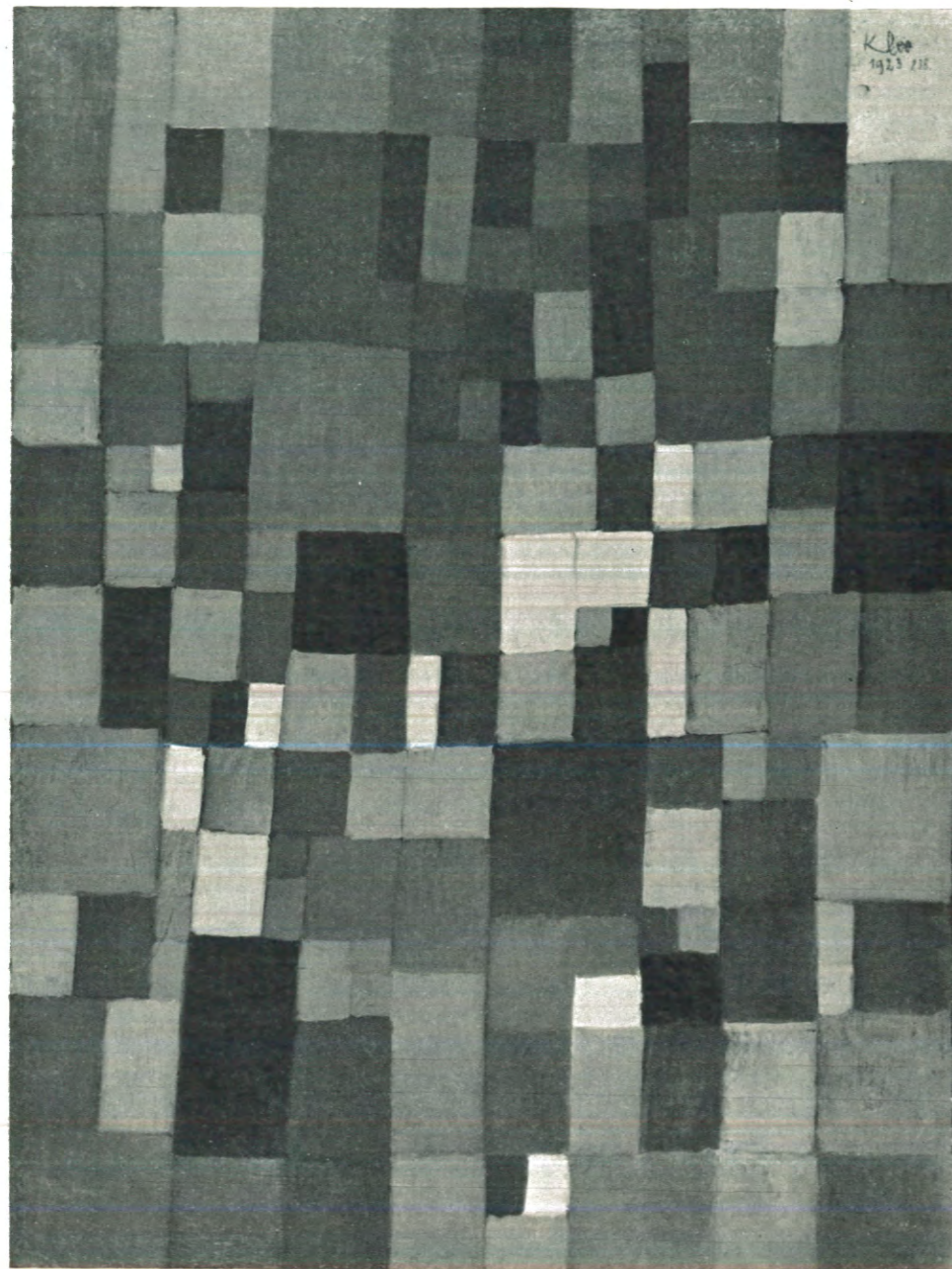
1923/234: Chinese porcelain.
Watercolour on plaster, varnished.



In another individual pattern, the quinquepartition is so obvious that one is reminded of the five on a die.



The parts are here only loosely connected, indeed, not at all, in the case of the five on a die. Yet they belong together inexorably, and nothing may be taken away or added without destroying their individuality. Thus their integration, while imaginary, is no less compelling than the physical integration of the five parts of our cross.



1923/238: *Harmony from rectangles*
in red, yellow, blue, white and black.
Oil on cardboard. 70 x 51.

The last time I was critical, in a few cases, of the casual way in which the members were loosely scattered, so that one could almost blow them away, but that does not mean that members must always be physically connected. Thus we may, in good conscience, accept the distinction between physical and imaginary context, differentiating the physical connection of the elements of a pattern from the imaginary.

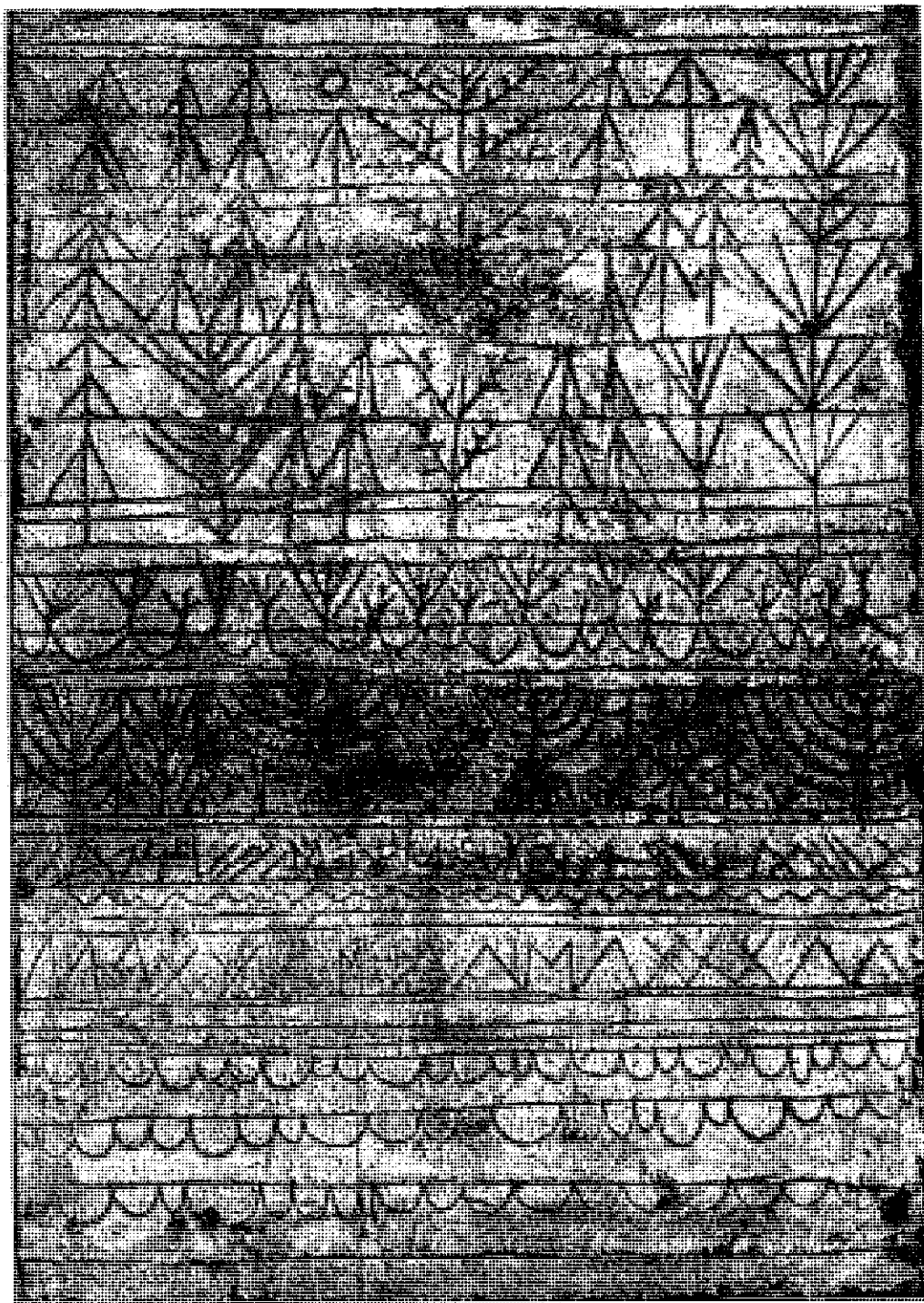
Articulation
with an imaginary trend
[3, 4, 5]



¹ Examples occurring on pp.9/24a, 9/25a and 9/25b
have been consolidated.

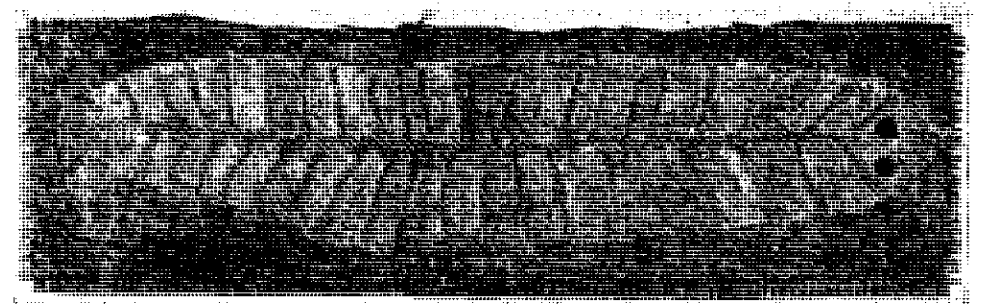
Articulation with connected trend [2, 6, 7, 8, 1]¹

We may also distinguish, as we have already seen, the working together of structural and individual articulation in the physical sphere of the individual himself or beyond him into a wider sphere.



1926/U 8: *Young forest panel.*
Oil on plaster-grounded muslin on cardboard on
wood, 36 x 25.5.

1938/N 5: *Caterpillar fish.*
Watercolour on jute, 13 x 44.



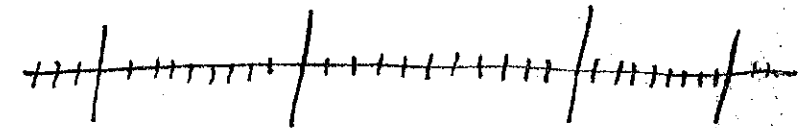
Here are some basic possibilities for
this afternoon.
Let us briefly summarise again:

The two elements of articulation
combined

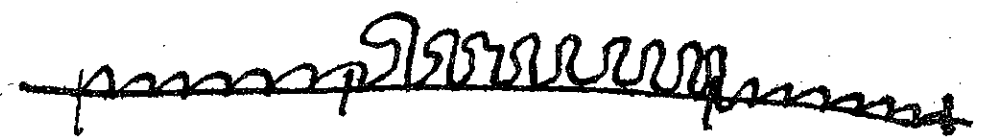
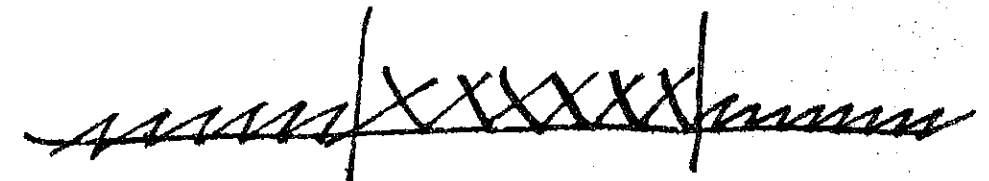
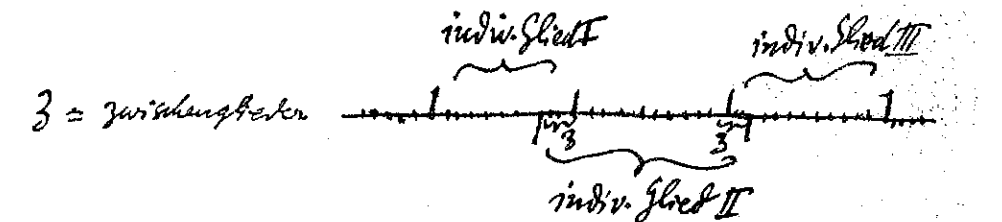
Formation of a higher intermediate
articulation by the interlocking
of certain main elements

3 = intermediate elements
individual element I
individual element II
individual element III

Change in structural character
coinciding
with higher articulation

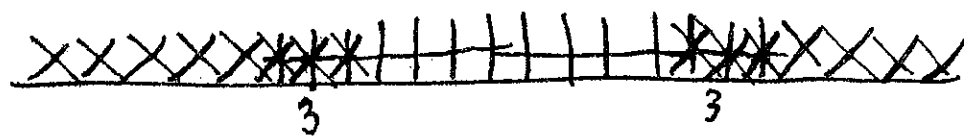


Die beiden Gliederungscharaktere
vereinigt



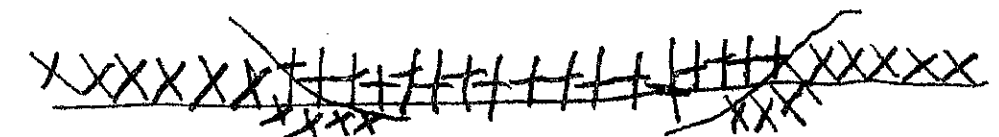
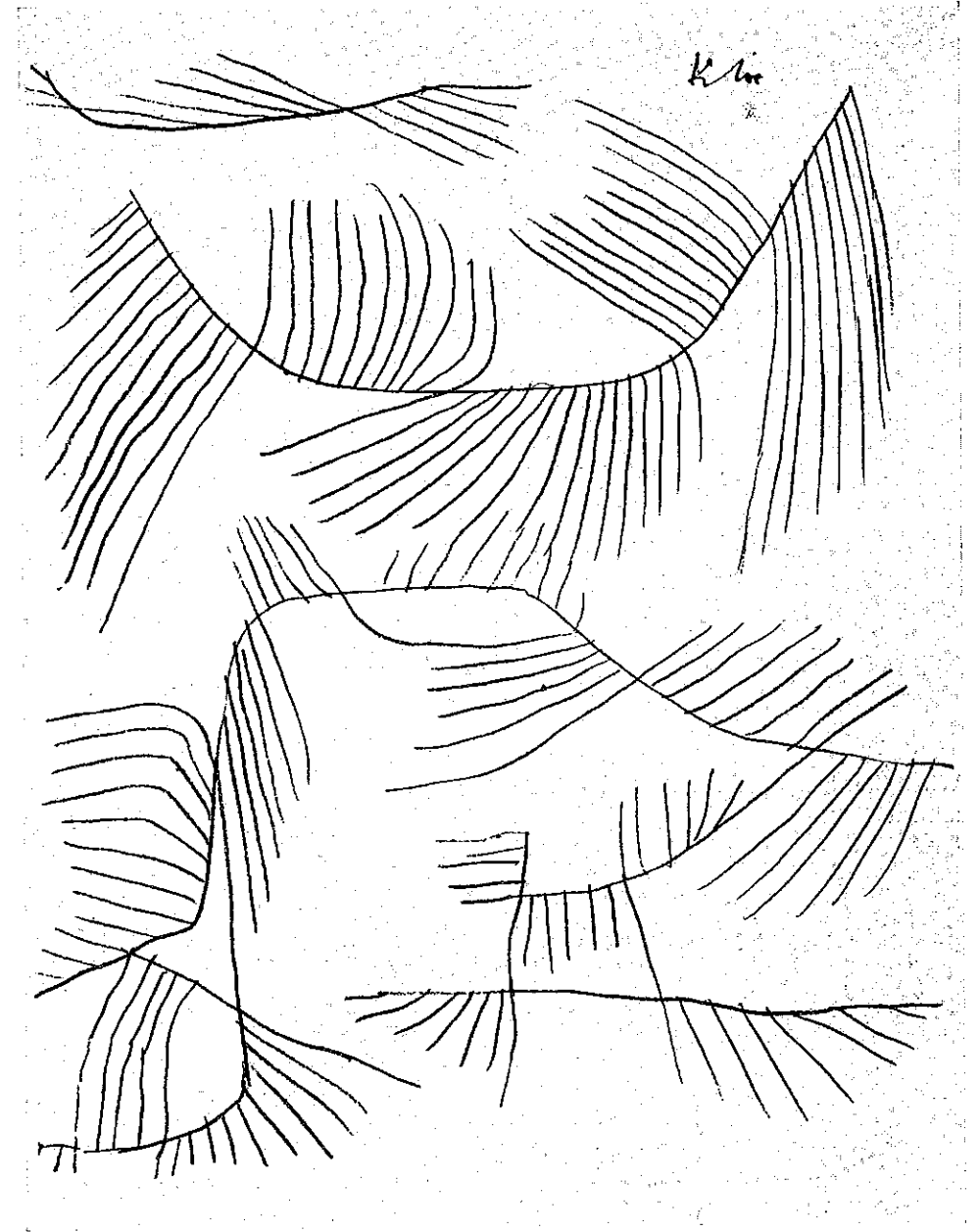


1927/2: *Flag-decked city*.
Watercolour, 21.8 x 29.6.

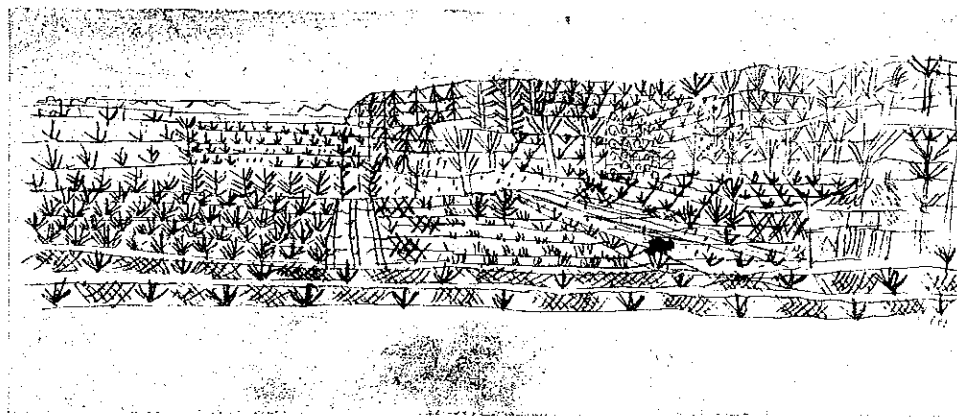


Formation of intermediate
elements by structural overlaps
or interpenetrations.

1938/R 13: *'Above and below'*.
Zulu crayon, 27 x 21.5.



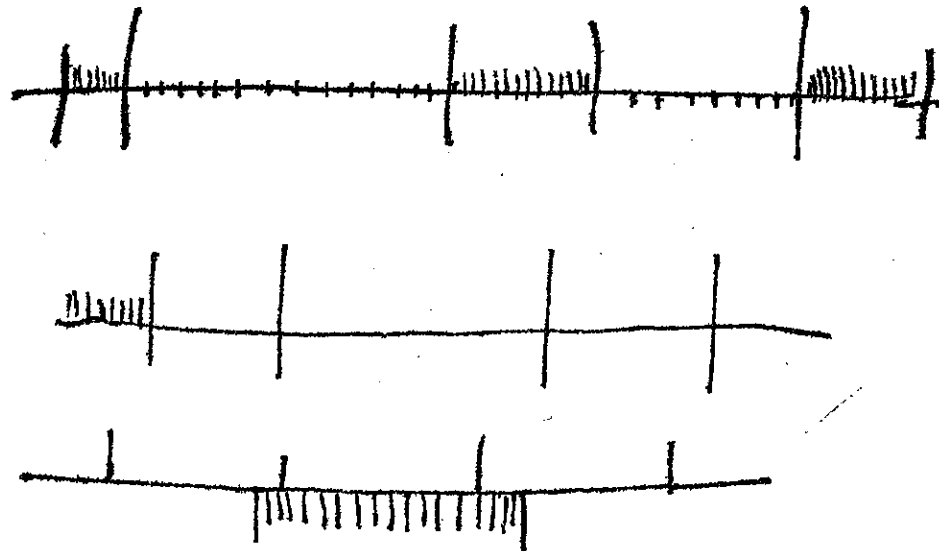
Formation of intermediate
elements by sidling overlaps
from one main area into another.



1925/d 7: *Woods near M.*
Pen-and-ink.

Woods near M. A purely linear example. The two lowest line limits constitute an applied example of an intermittent structure.

When the visibility of the structural rhythm is very different, one may speak of an intermittent structure.

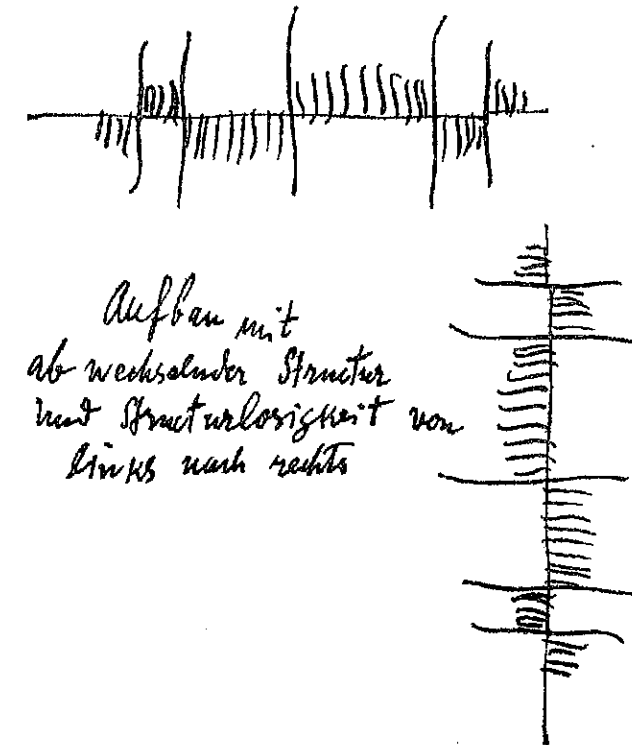


Figuration examples for linear and planar structural rhythms.

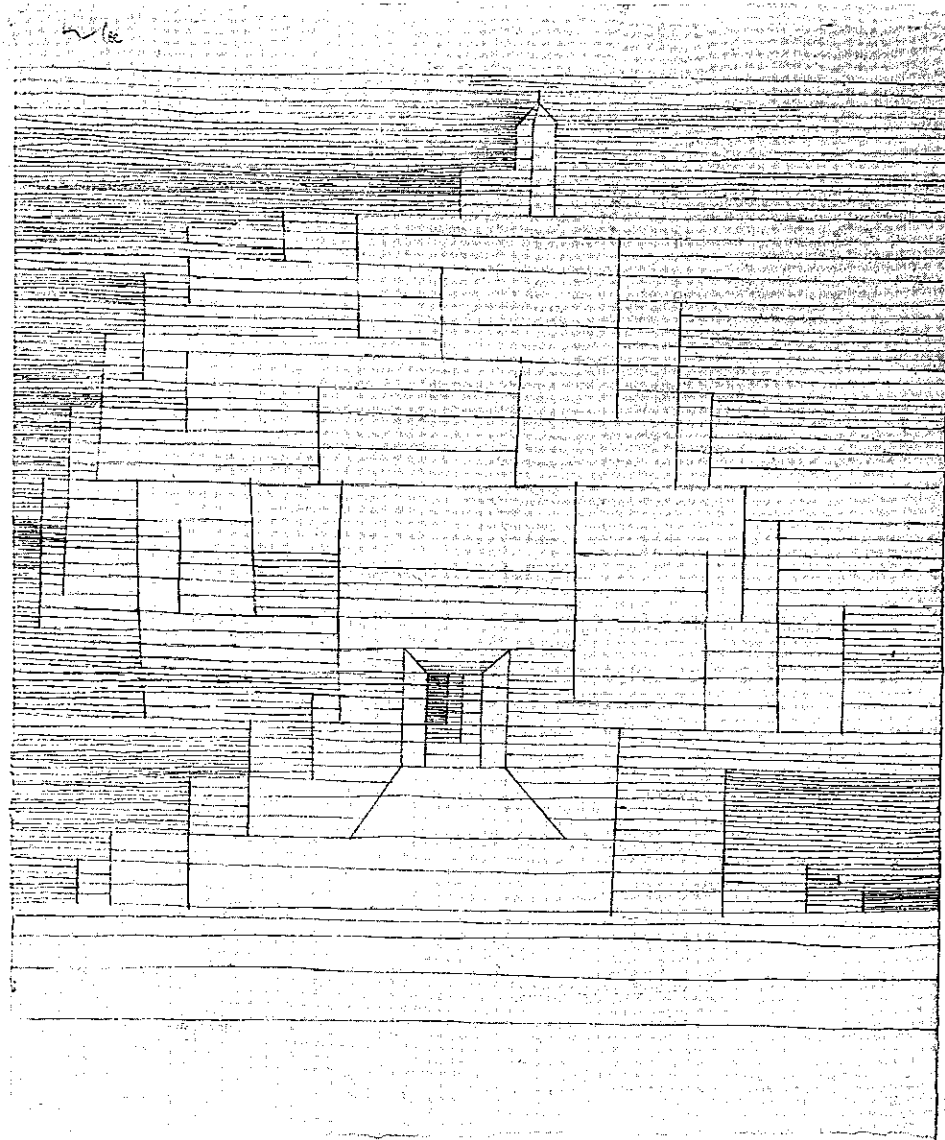


1928/F 10: *Old town and bridge.*
Tempera on sackling, 11·5×42·5.

1928/F 10: *Old town and bridge.* Two-dimensionally formed structural rhythms with tonality emphasis (and colour). Lines as limiting forms.
Cf. *Dividual-individual synthesis*, pp.200-205, as well as the central opposition of *dividual-individual*.
Volume 1, pp.237-246.

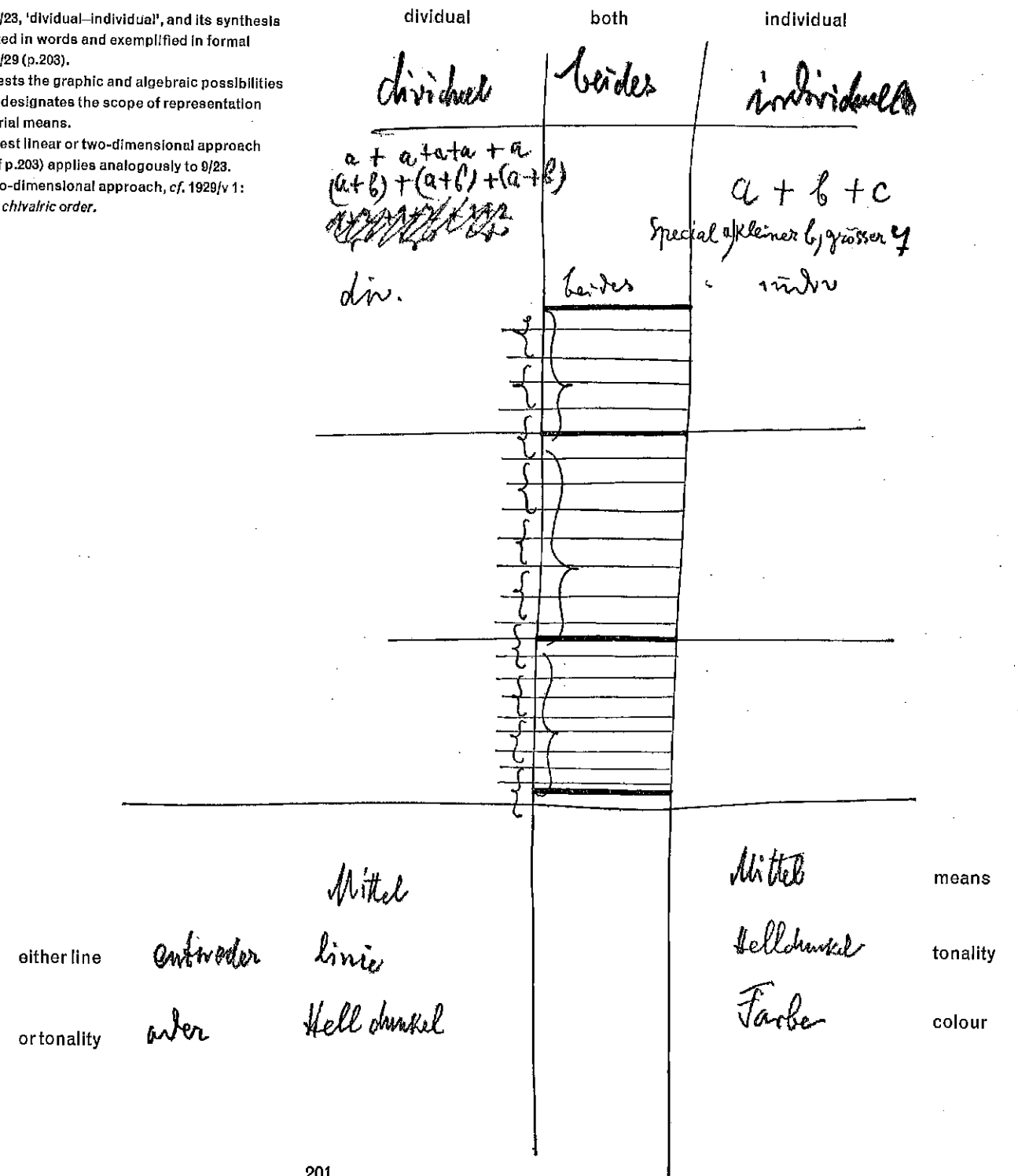


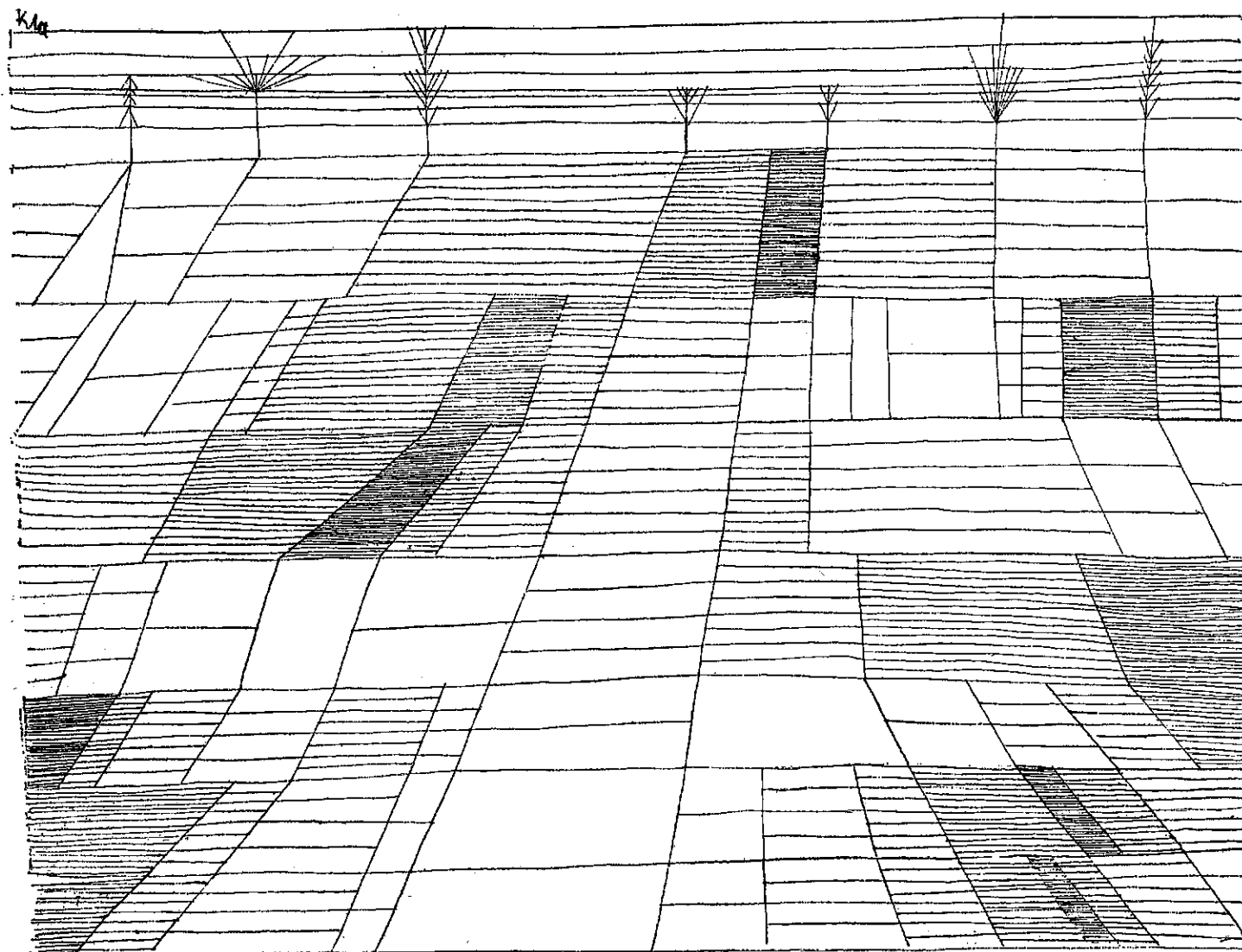
Construct with alternating structure and lack of structure from left to right



The simplest linear or two-dimensional approach (bottom of p.203) applies analogously to 9/23.

For the two-dimensional approach, cf. 1929/v 1:
Castle of a chivalric order.





1929/n 4: Young trees on cleared ground.
India ink and pen-and-ink. 23.8 x 31.4.

Figuration examples:

1 Unaccented lines – accented lines:

Formal examples 20/59a, p.211.

Formal example IV/192, p.209.

1925/n 6: Settlement in the woods, p.218.

1925/44: Rocky lookout, p.210

1929/n 4: Young trees on cleared ground, p.202.

2 Lines-tonality:

Theoretically only approximate in black-and-white reproduction.

1924/128: Structural II, p.236.

1926/U 8: Young forest panel, p.194.

1927/2: Flag-decked city, p.196.

1927/x 3: Côte de Provence 5, p.208.

1927/F 10: Old town and bridge, p.199.

1929/2: Architecture in the east, p.308.

3 Lines-tonality-colour:

1915/245: Overgrown houses, p.212.

1923/159: Group linked by stars, p.188.

1929/m 10: Monument at the edge of the fruit land, p.294.

1937/q 16: Incipient cold, p.204.

Dividual-individual synthesis

Exercises. 8/29.

Basic scales, tonality—or colour complementarity

A rhythmic-linear example

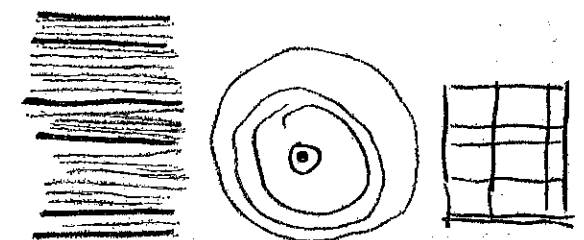
A dividual example

An individual example } combination of both

Dividual-individual synthesis

	div.	indiv.
entweder:	subtontaltoning	betonte Linien
oder:	Linien	hell-dunkel Töne
oder:	Linien	Farbe
oder:	hell-dunkel Töne	"

*Line-dimensional
oder 2-dimensional Anlage*

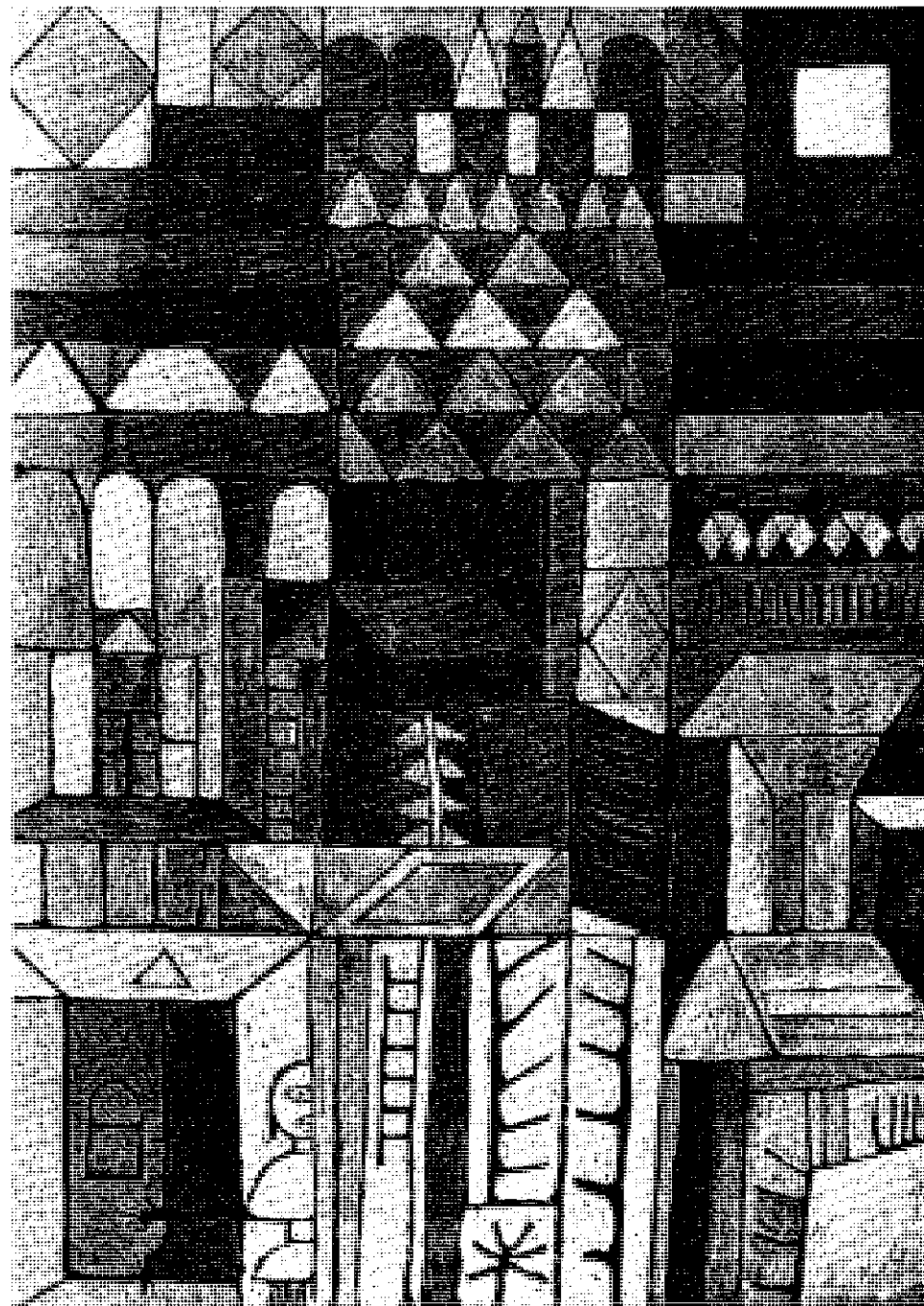


Means of representation

	dividual	individual	Simplest synthesis
Either:	unaccented line	accented line [1]	one-dimensional
or:	line	tonality [2]	or two-dimensional approach
or:	line	colour [3]	
or:	tonality	colour [3]	

¹ The lower part of 8/29 has no direct connection with the required exercises concerned with dividual and individual synthesis. It relates to the main sections of the Theory of form and figuration.

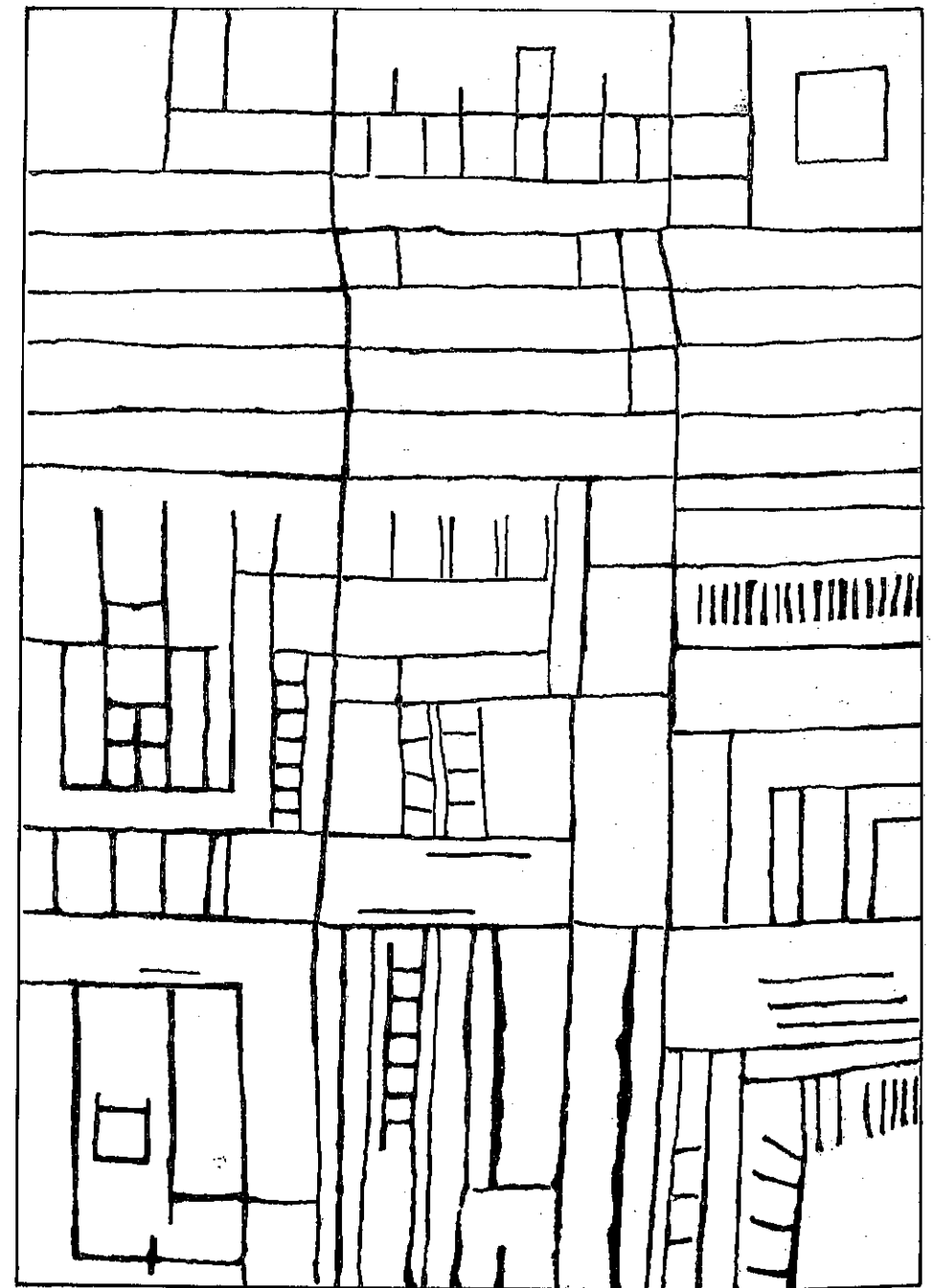
Elementary forms and their inner being (norms) threads, nodes¹
Elementary forms in format (normal)
Combined forms in format
composite form (the species),
one element shifted over another



1937/q 16: *Incipient cold*.
Oil. 73 x 53.

Dividual-individual synthesis in a figuration example, with line and tonality, line and colour, tonality and colour as the means of representation. There is at the same time a synthesis of intraspatial and extraspatial representation.

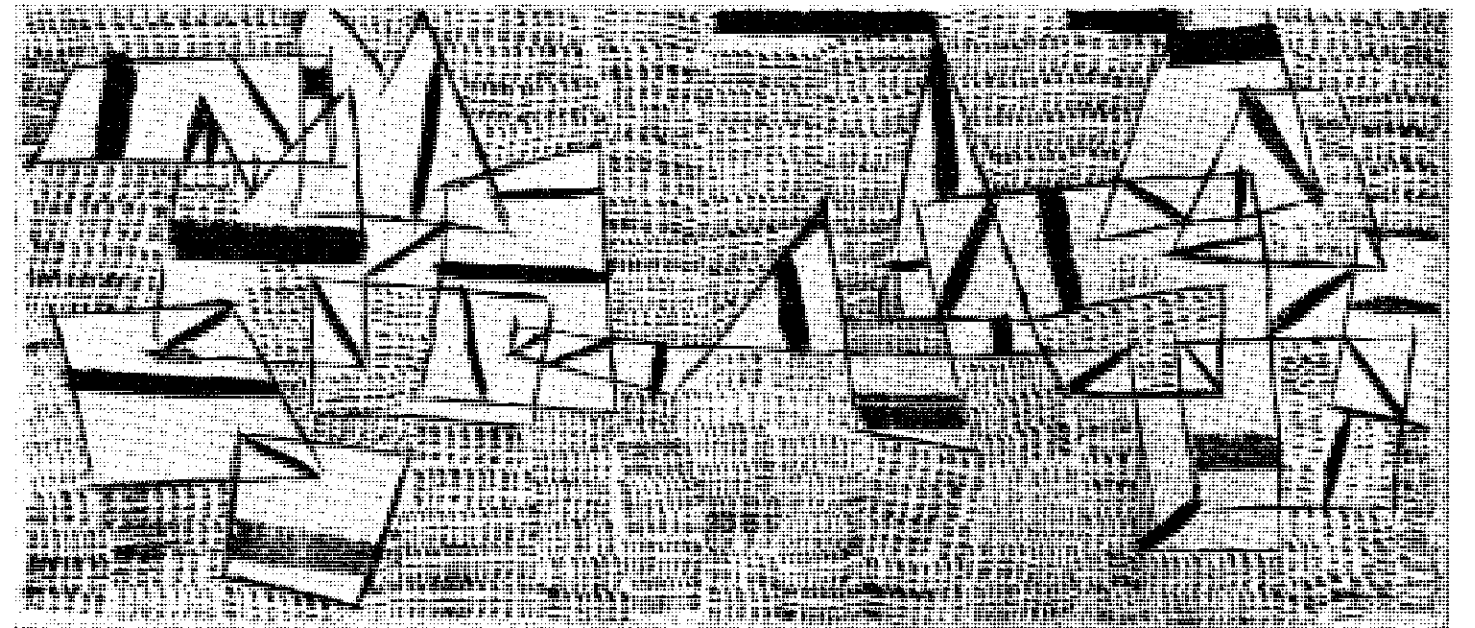
Linear excerpt of horizontals and verticals
(omitting the diagonals) from 1937 q16: *Incipient cold*.
Cf. scheme 9/23, p.201.



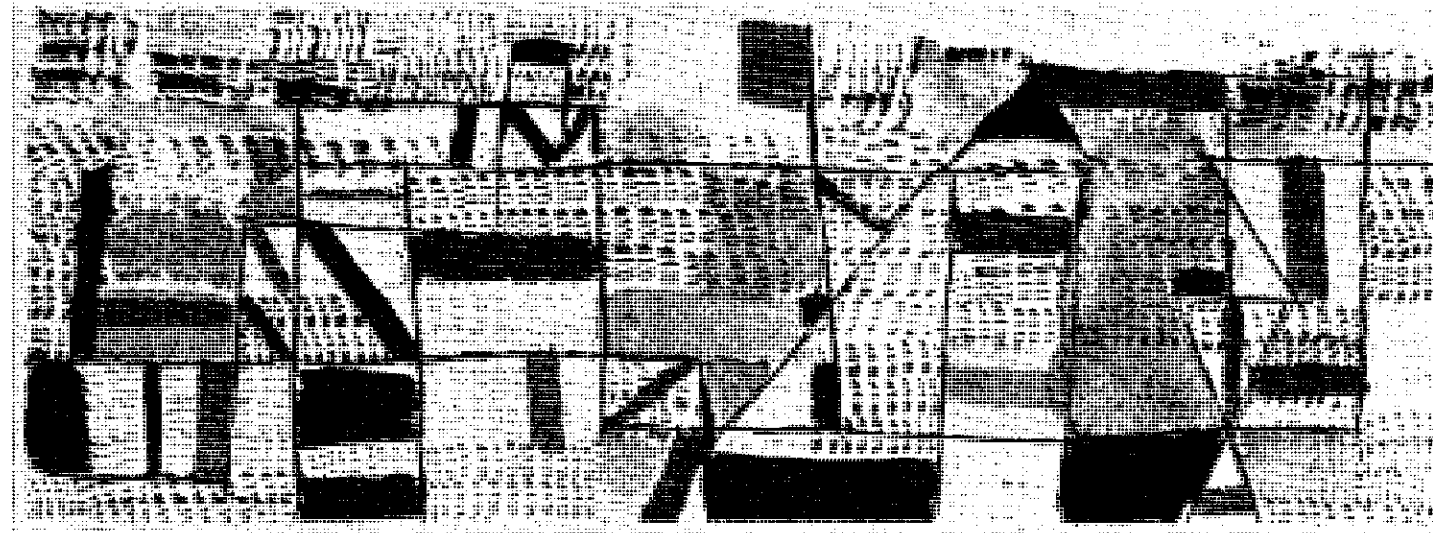


1927/231: *Côte de Provence 3*.
Watercolour. 31 x 23.

Cf. 1927/x 5: *Côte de Provence 7*, p.207, also
1927/x 3: *Côte de Provence 5*, p.208.
In the summer of 1927 Klee was on the île de
Porquerolles and in Corsica.

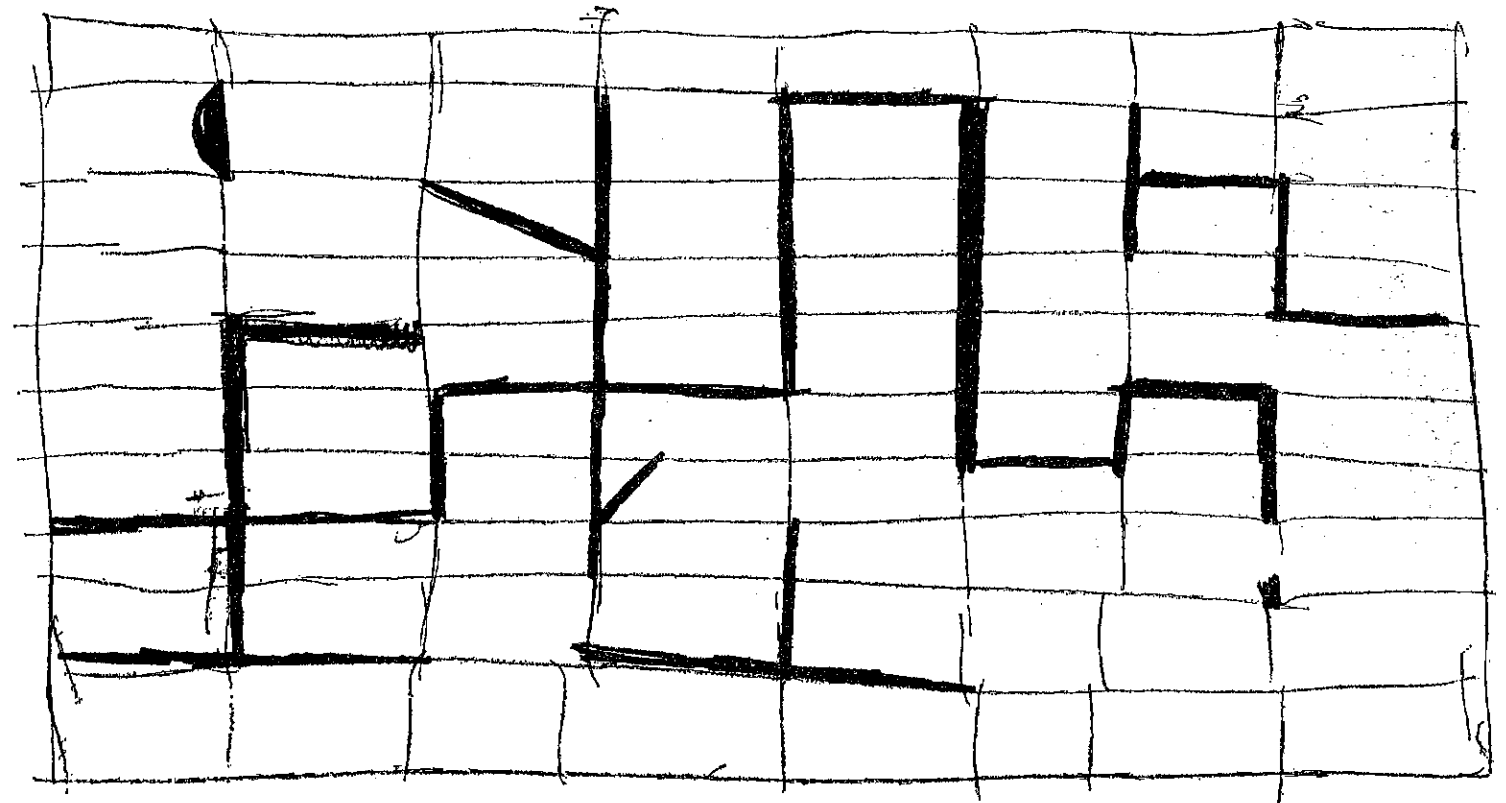


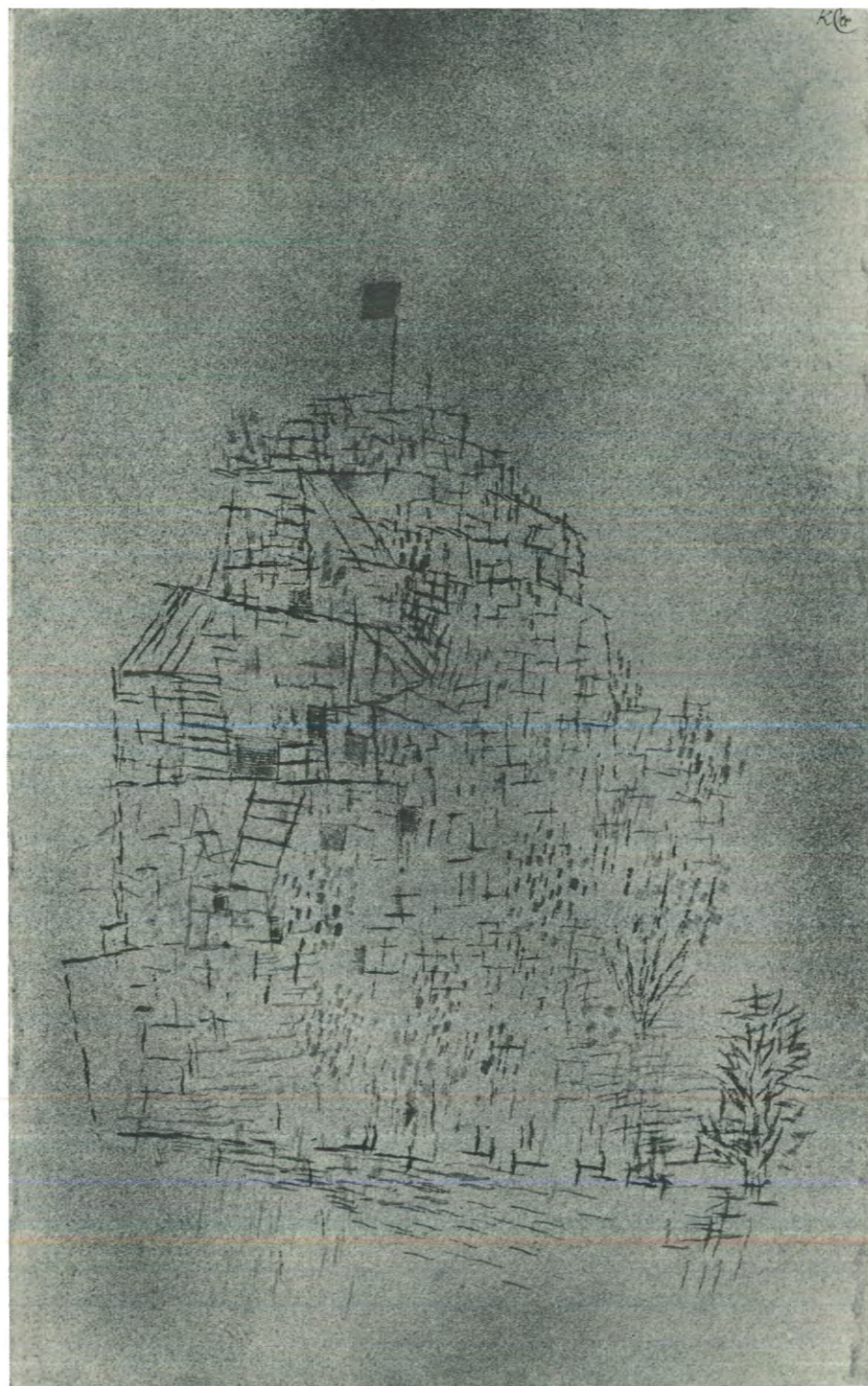
1927/x 5: *Côte de Provence 7*.
Watercolour. 13 x 30.5.



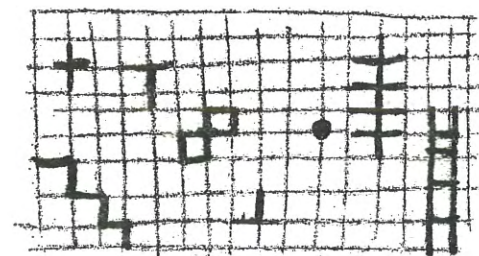
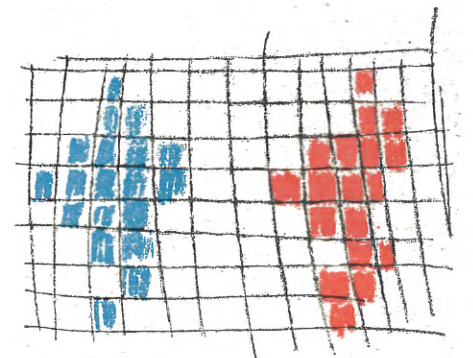
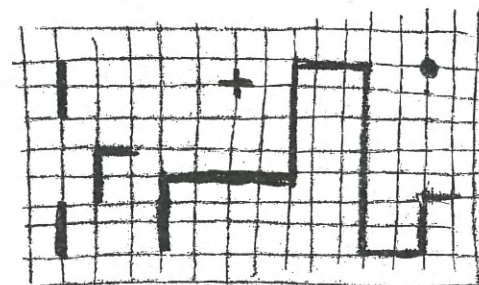
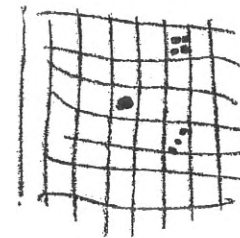
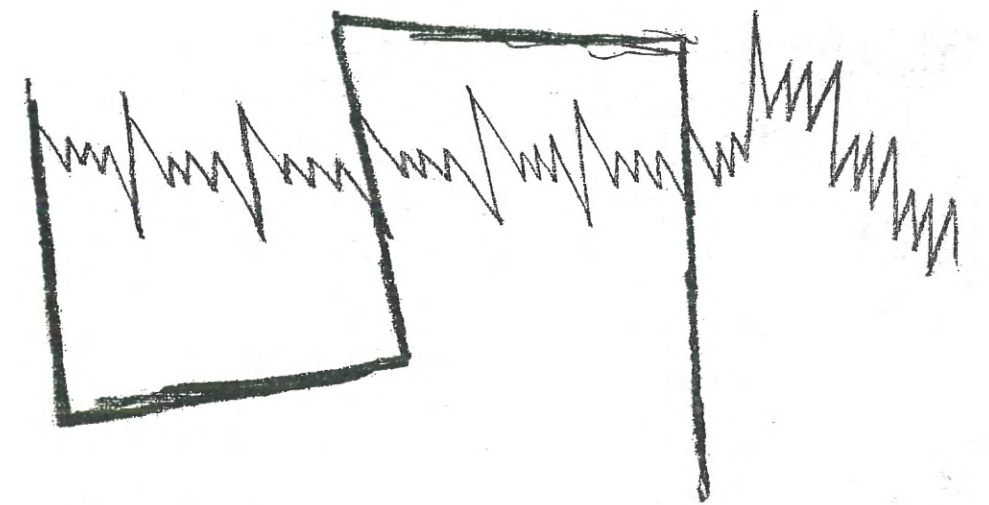
aera planar

purely planar

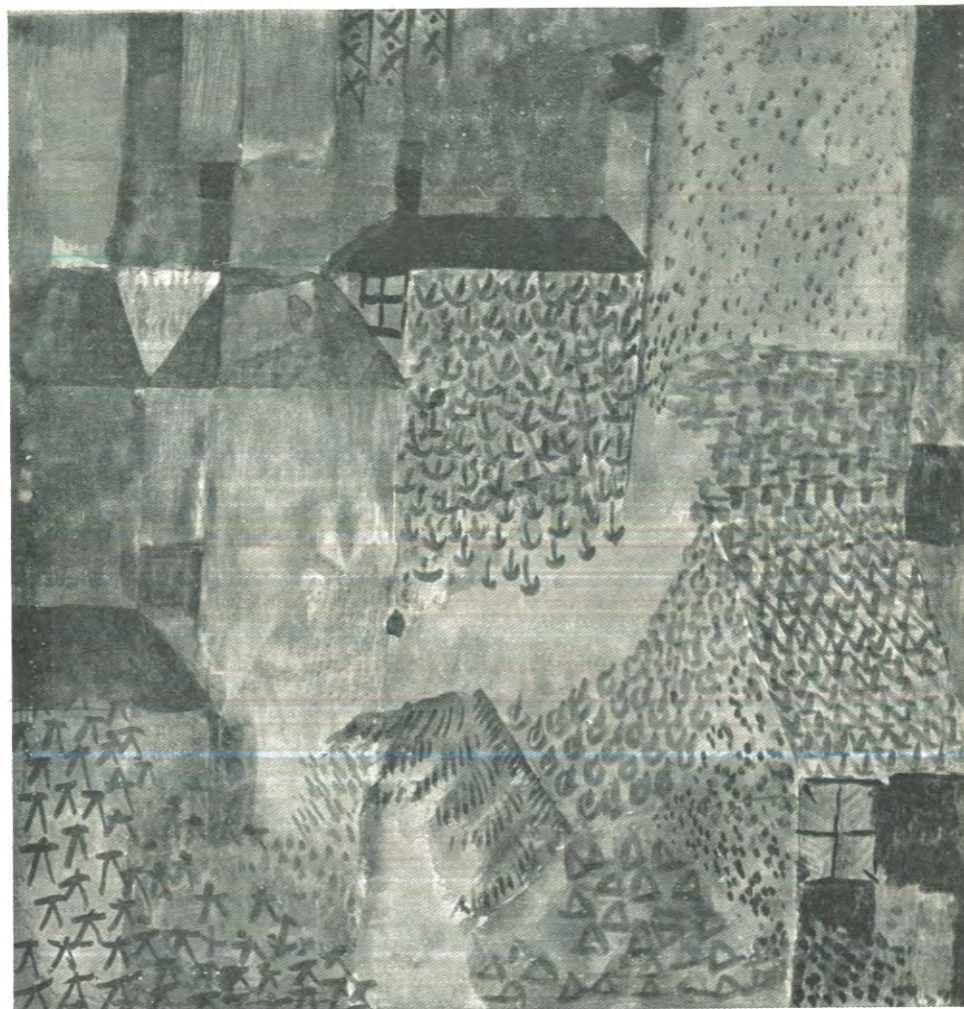




1925/44: *Rocky lookout*.
Watercolour and air brush on paper.
37.5 x 23.5.



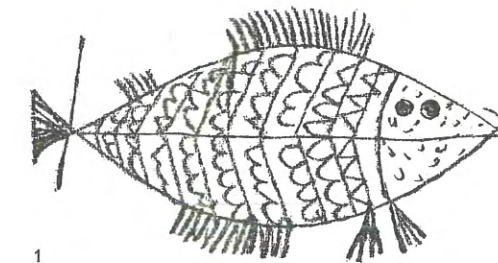
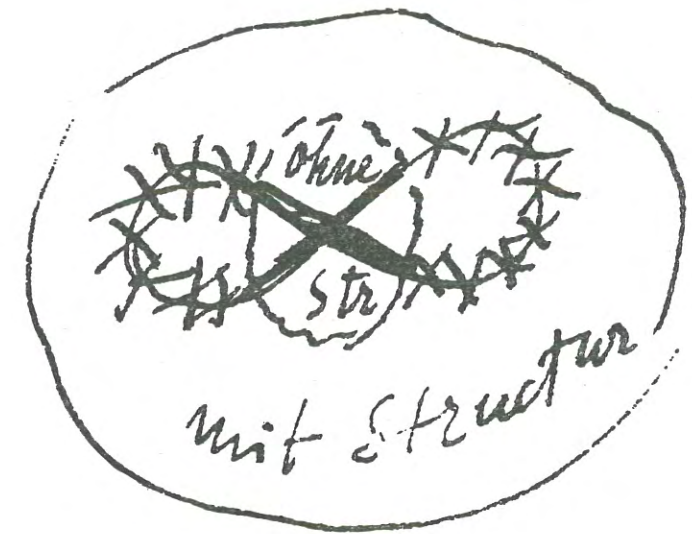
Form-giving examples with structures on dividual-
rhythmical base and with individual accents
(dividual-individual synthesis).
From 20/59a.



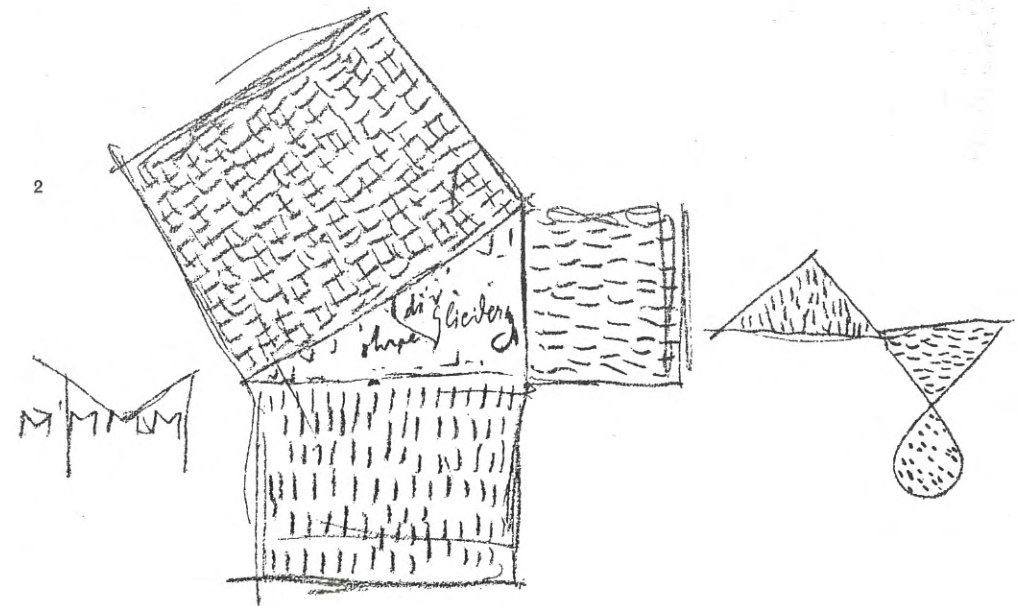
1915/245: *Overgrown houses*.
Watercolour and tempera on chalk ground.
18.3 x 17.5.

Alternation of structurally accented and unstructured areas in a landscape-architecture setting.

Take the case of the dual circulation
Without structure, with structure

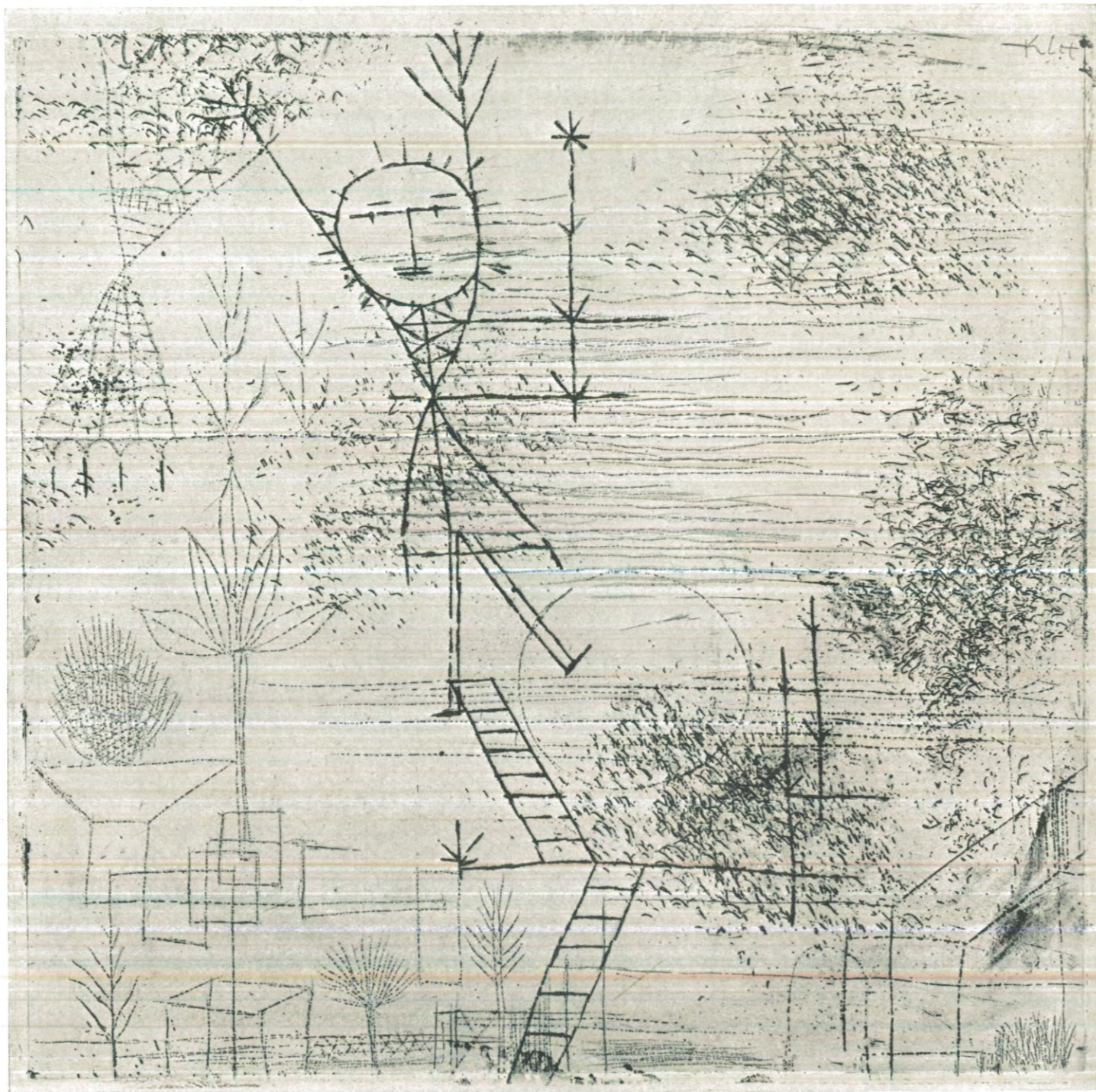


1



2

[1] Fish with scales. Integration of structural and individual articulation in the individual's physical sphere. 20/59a.
[2] Structural character alternation in higher articulation. Alternating structures | - + as divisible, dividually articulations. The middle without articulation. 20/59a.



1928/29: Height!
Etching on copper. 22.5 x 22.5.

Broadening a force means thinning it:
Extremes:
Small and dense
Large and rarefied.

Breitung einer Energie bedeutet Lockerung =

Extreme: klein und dicht

gross und locker

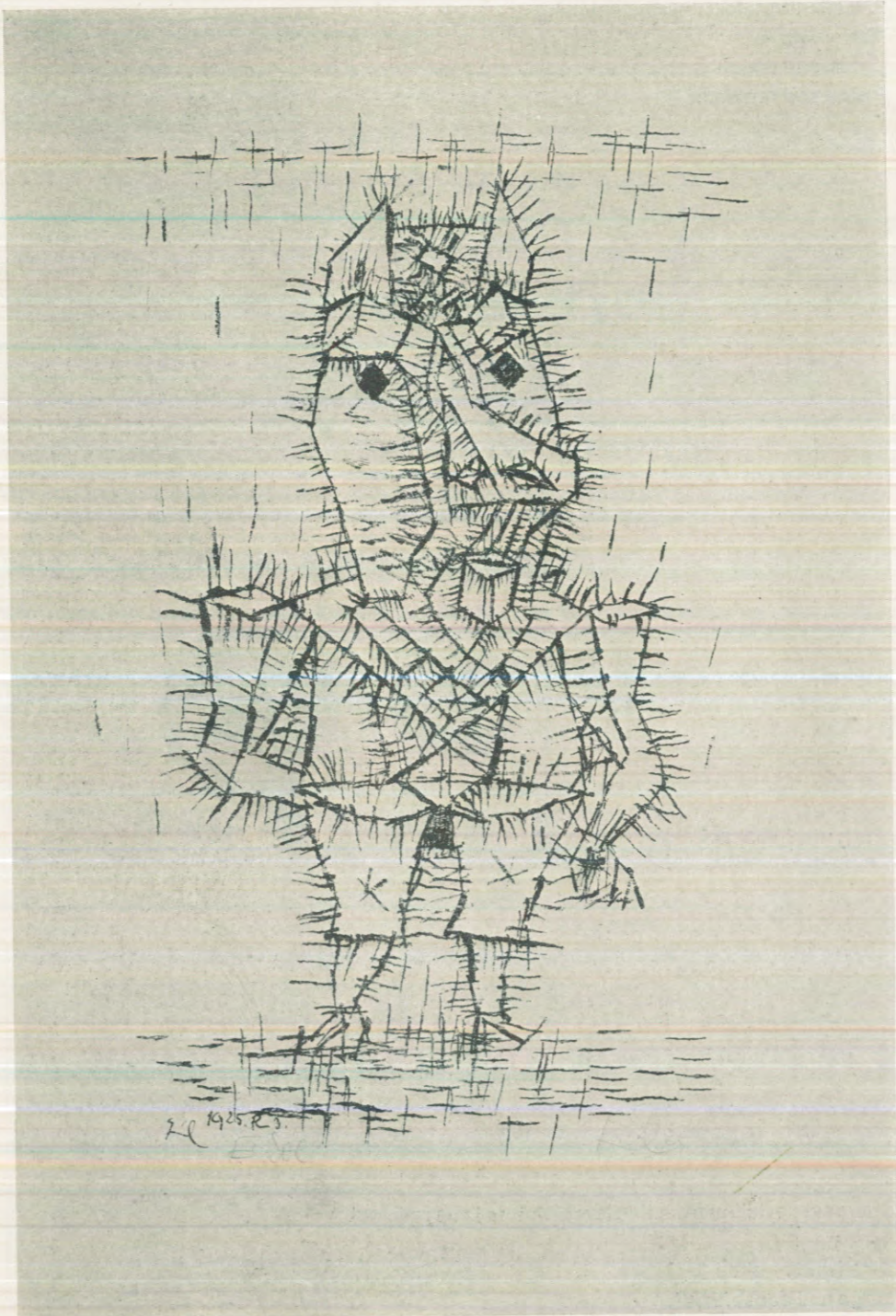
die stärkste Abweichung dieses Naturgesetzes
ist die Umkehrung ins Gegenteil =

Extreme: klein und locker

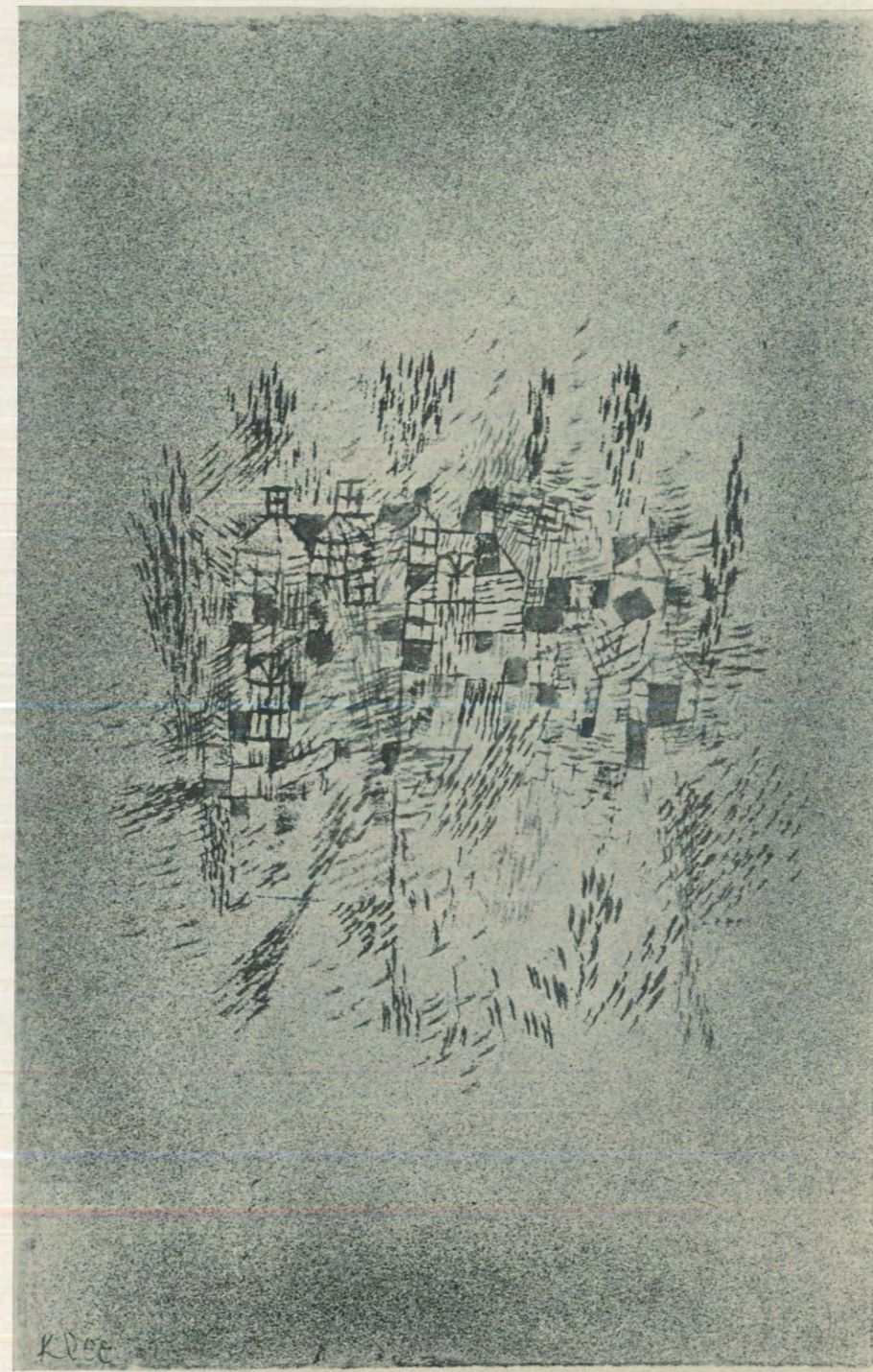
gross und dicht

Sharpest deviation from this law of nature is its reversal.
Extremes:
Small and rarefied
Large and dense. 21/61.

1925/R 3 zero: Ass.
Lithograph, 24 x 14.5.



1925/m 8: *Houses along the park.*
Watercolour, 23.5 x 15.5.



"Scattered" as against "compact" structures
'always create strong contrast.' This is true also of
alternatingly distinct and blurred structures.
Structure and absence of structure. Cf. page 215 for
the extremes of small and dense, large and rarefied,
small and rarefied, large and dense.



1925/n 6: Settlement in the woods.
Pen-and-ink.



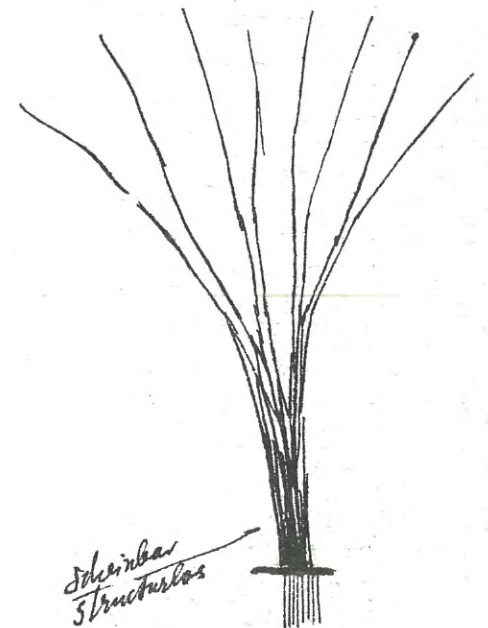
Drawing
from the Theory of form and figuration. 11/282.

'Scattered' (structure) as against 'compact' always creates strong contrast, especially when the consolidation is very dense. It is then easy to take the step from an alternation of distinct and blurred structures to an alternation of structure and absence of structure. This is in explanation of the concept of absence of structure.

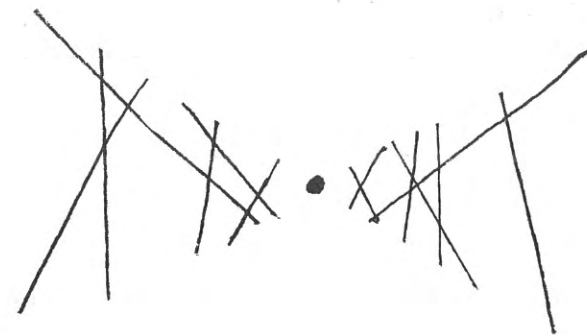
'Scattered' compared with 'compact'.
Apparent absence of structure.

"Zerstrent"
im
Vergleich zu

"Gesamt"



Scheinbar
strukturlos



Studium der Bienenwabe

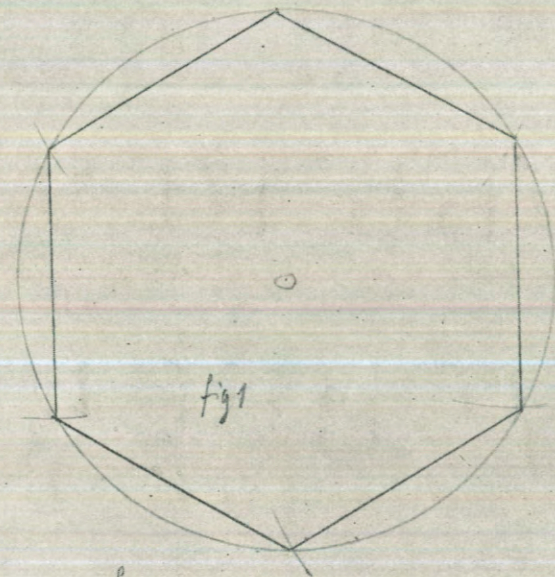
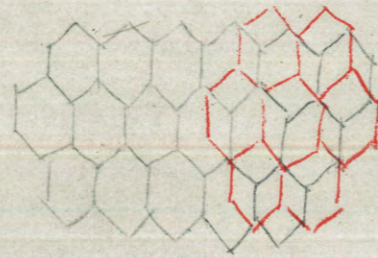


fig 1 eine Zelle
(aus dem sechsteiligen Kreis konstruiert)

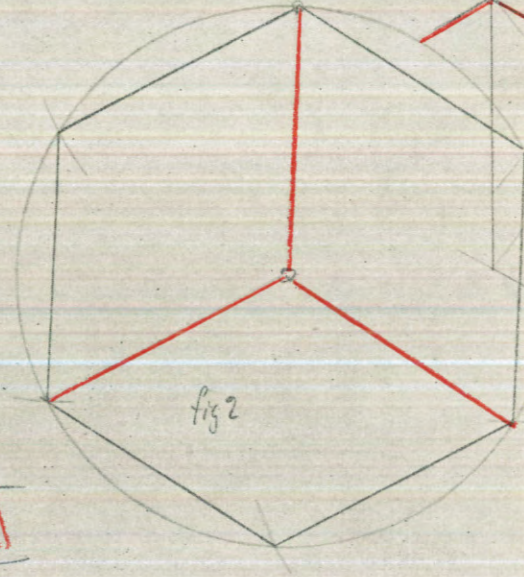


fig 2 eine Zelle mit Zerschneidung
(durch die rückseitige Zelle)

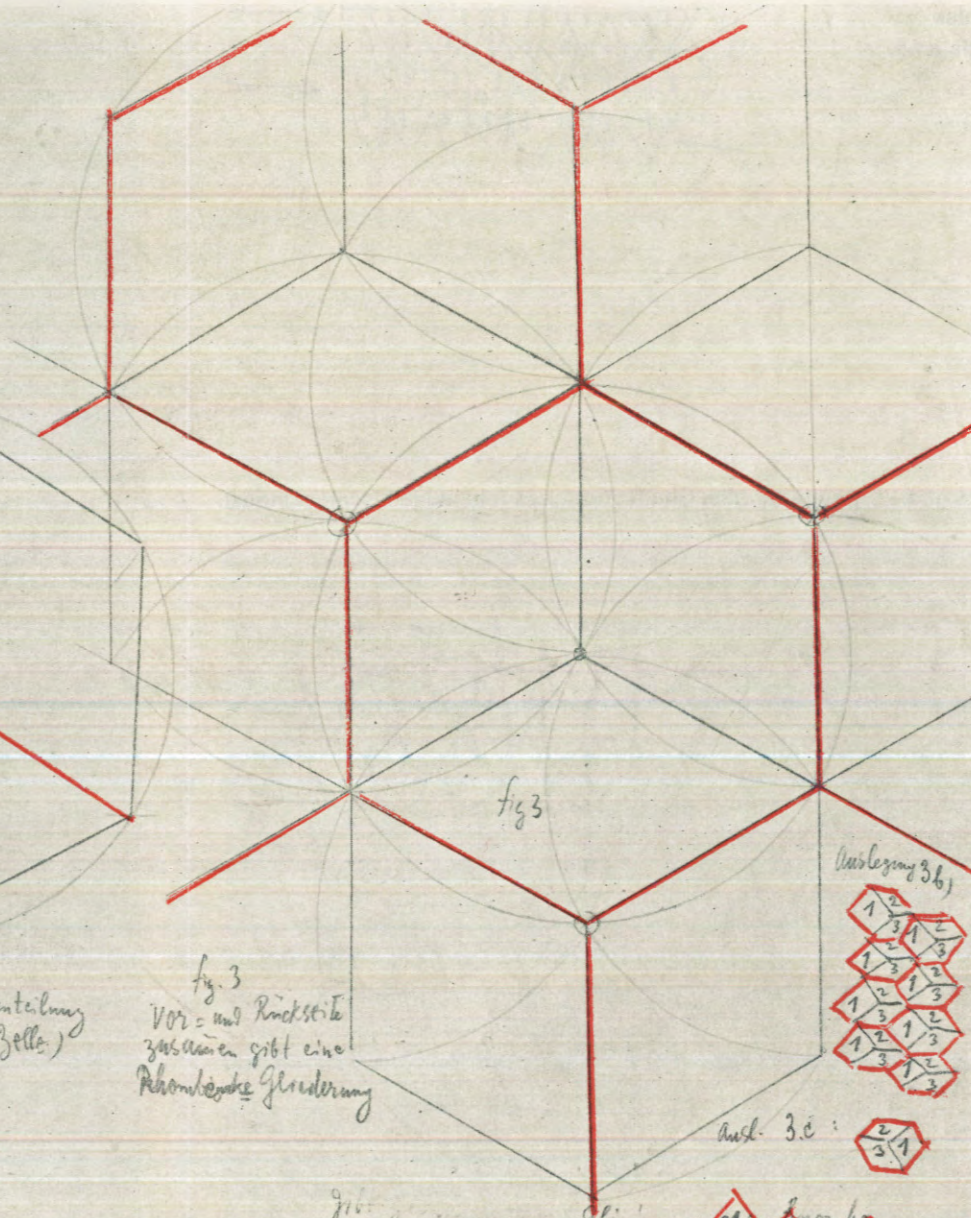
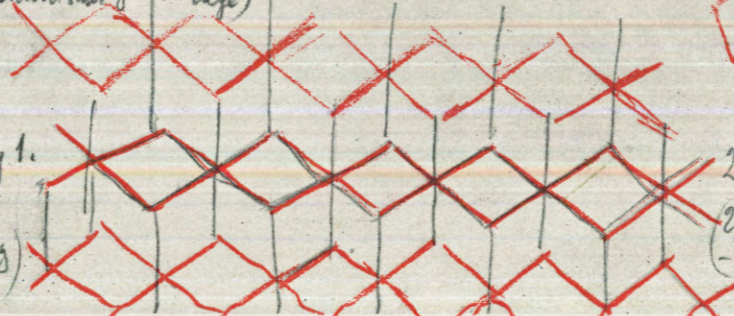


fig 3
Vor- und Rückseite
zusammen gibt eine
Rhombische Gliederung

Auslegungen
(auf mechanischer Grundlage)

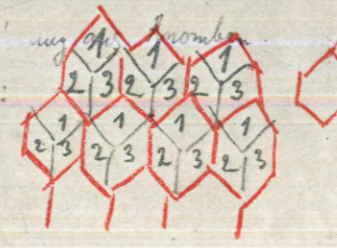
Auslegung 1.
(1a rechtwinklig gedreht)



2. Auslegung
(2a rechtwinklig gedreht)



Auslegung 3:
3a:



The honeycomb as a motive for variations.
20/2-8a.

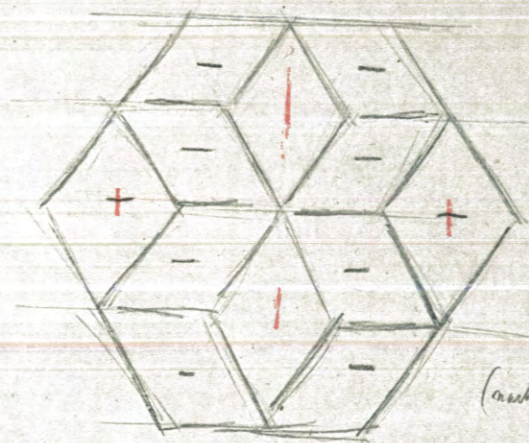
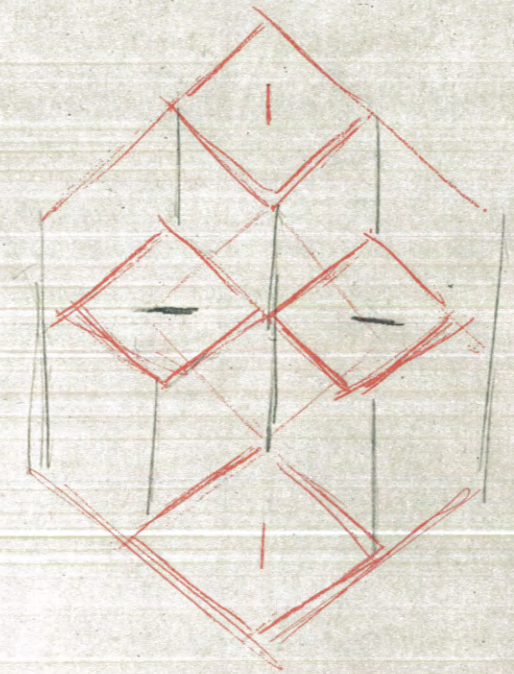
Study of the honeycomb. 20/2.

- Fig. 1: a cell
(constructed from sextipartite circle).
- Fig. 2: A cell partitioned
(by the cell in the back).
- Fig. 3: Front and back together yield a
rhombic articulation.
- Mechanically based patterns
(Auslegungen).
- Pattern 1
- Pattern 1a (turned at right angles)
- Pattern 2
- Pattern 2a (turned at right angles)
- Pattern 3
- Pattern 3a
- Pattern 3b
- Pattern 3c

Further subdivision or expanded form
(after Pattern 1)

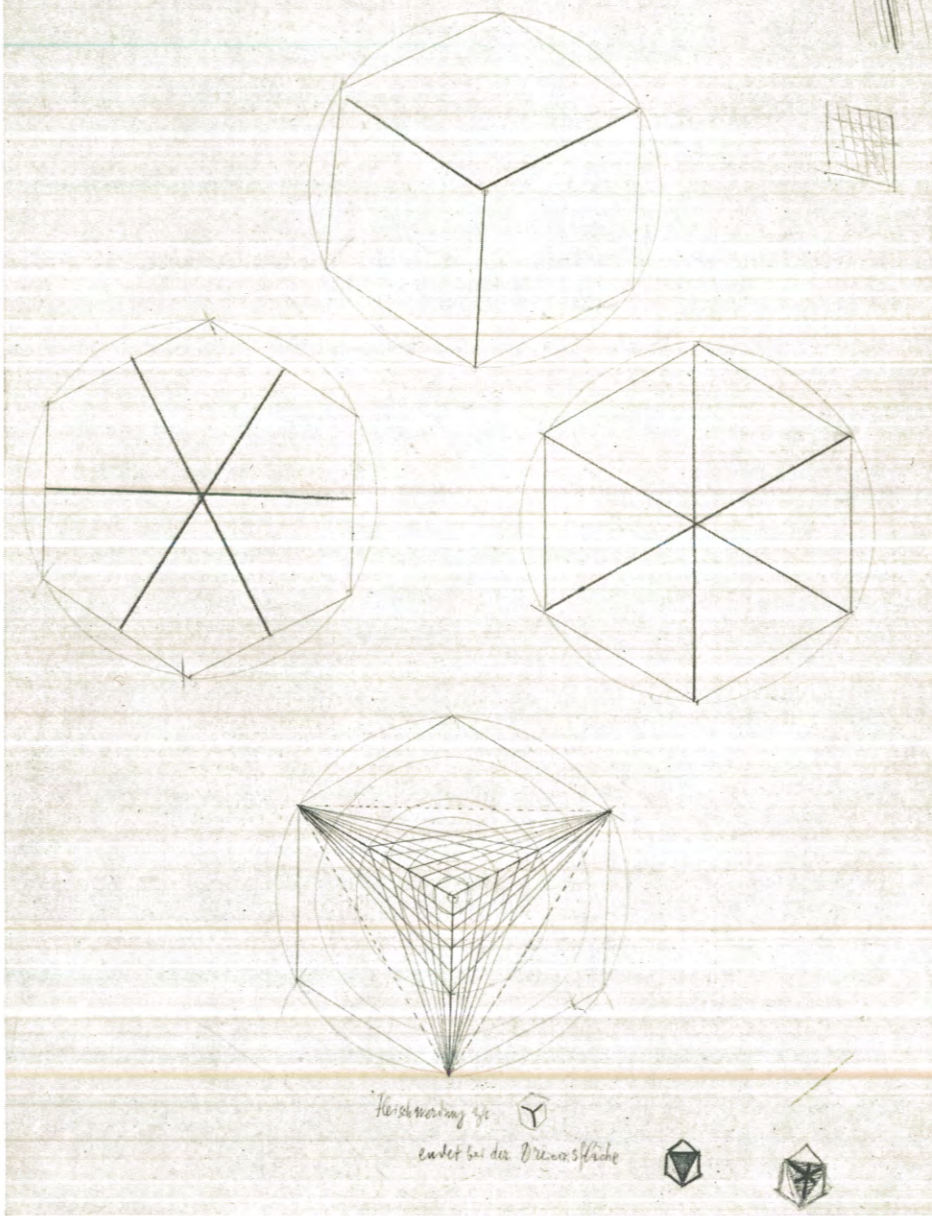
(after Pattern 1a)

*kleinere Teilung oder
erweiterte Form (nach Ausgang 1)*

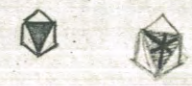


(nach Ausgang 1a)

Weitere Folgerung: dass das Haus nur Hülle, Raum ist
 dass das eigentliche dann das Leben ist
 dass die Linien Grenzlinien sind.
 dass aber innerhalb einer Zelle
 drei lebendige Linien stehen.



Harmonisierung für
 endet bei der Dreiecksfläche



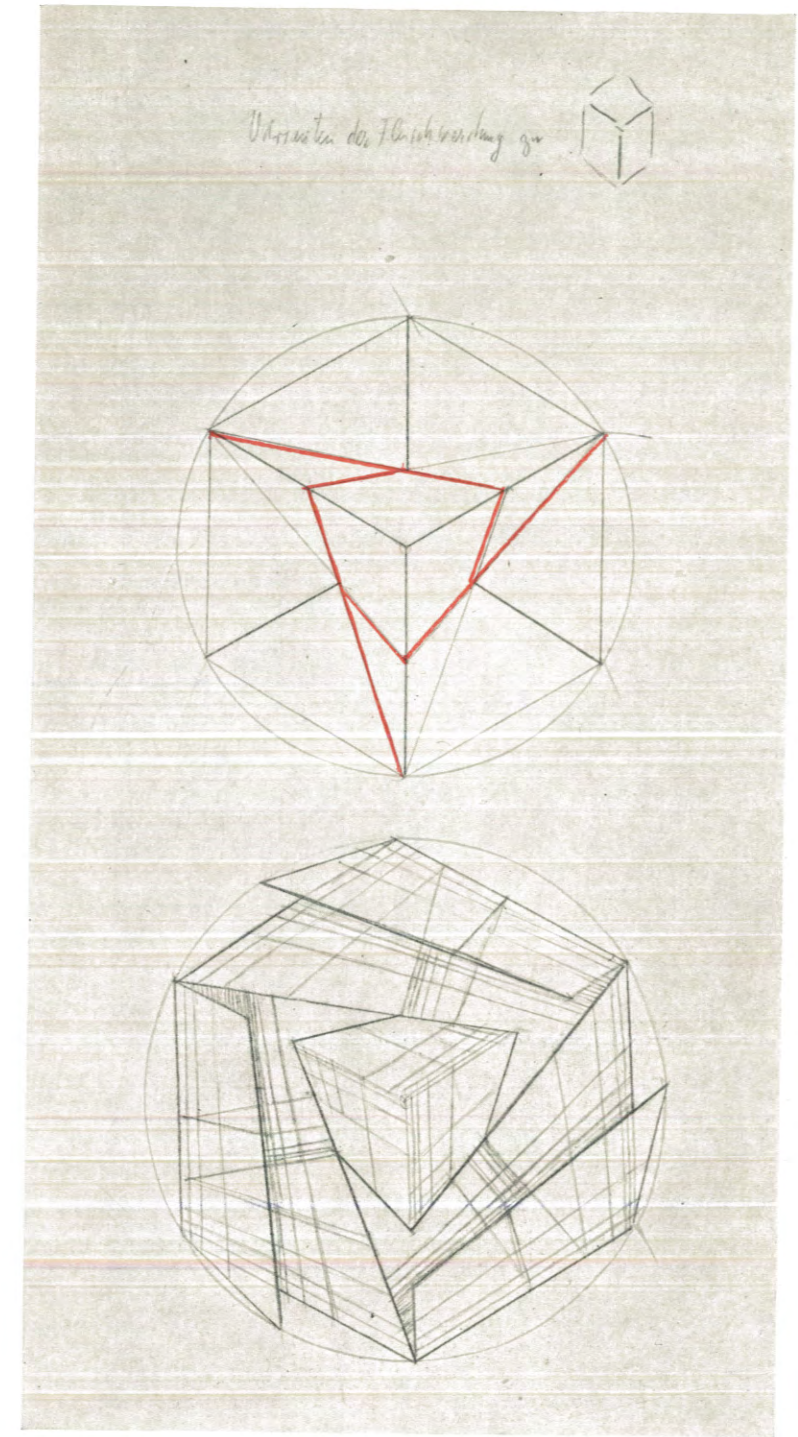
Further elaboration:
 The house is but shell, space.
 The essential element is the life inside.
 The lines are limiting lines.
 Within a 'cell' stand three living lines.

Cf. Productive line growth, p.257, and harmonised
 progression of a movement dimension, p.265.

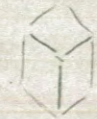
Incarnation to
 ends with the
 triangle surface

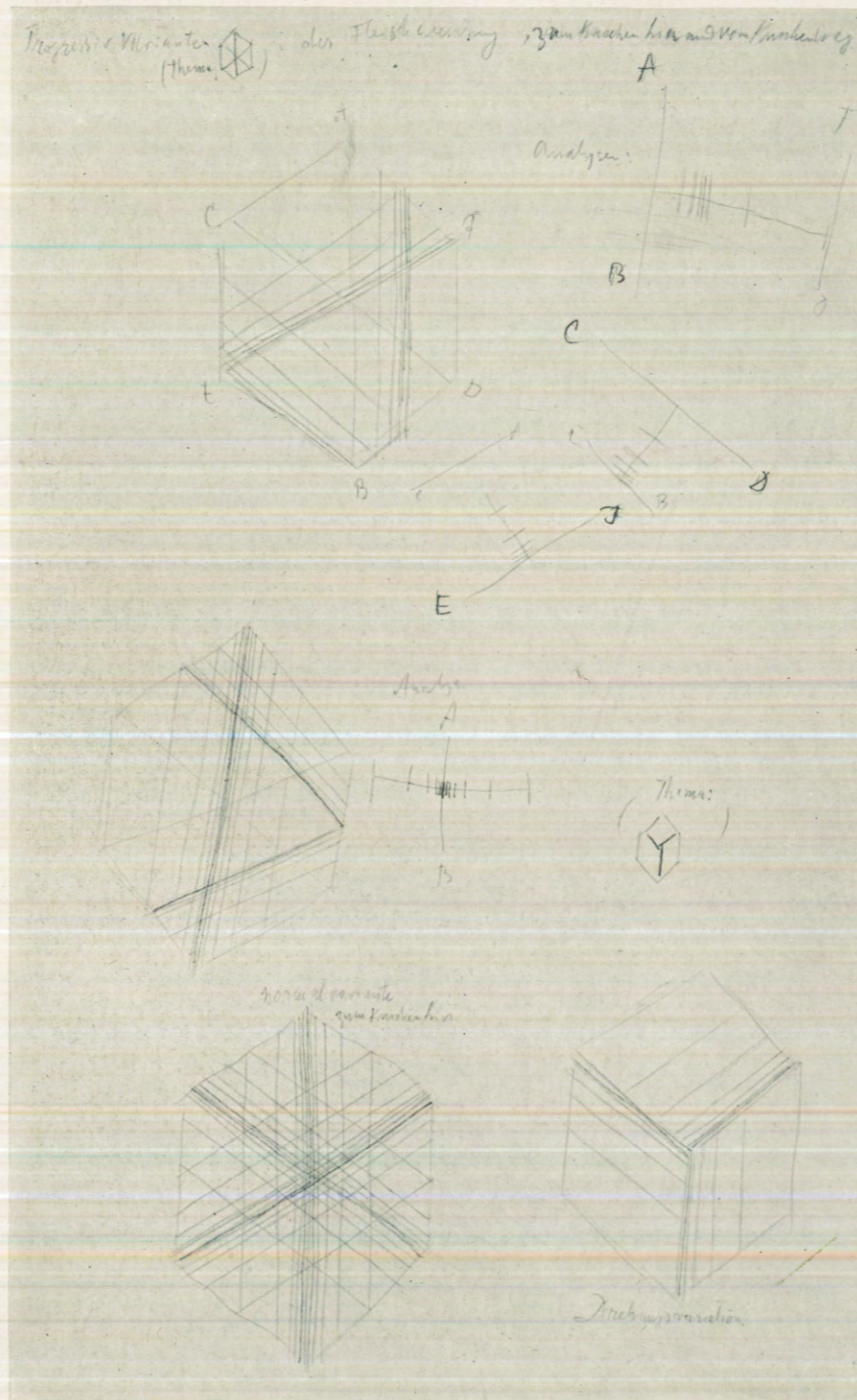


Variation of incarnation to

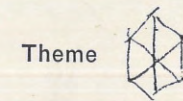


Variation der Flächenverteilung zu



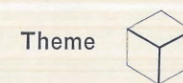


Progressive variants of incarnation towards bone and away from bone.



Analyses 1: A-B, 2: C-D, 3: E-F

Analysis: A-B

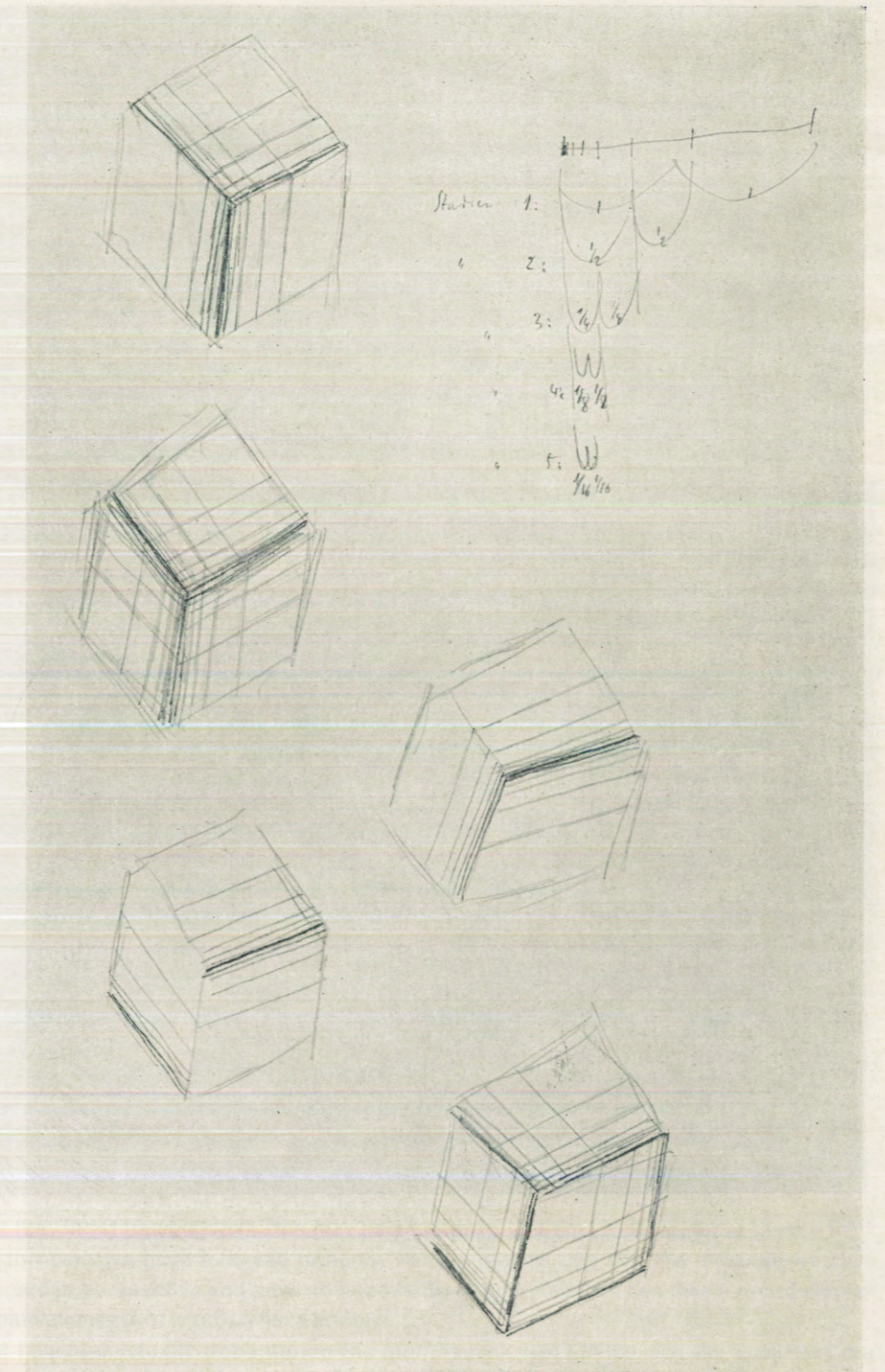


Normal variant towards bone

Rotation variation

Rotation stages

Stages: 1 1 1
2 $\frac{1}{2}$ $\frac{1}{2}$
3 $\frac{1}{4}$ $\frac{1}{4}$
4 $\frac{1}{8}$ $\frac{1}{8}$
5 $\frac{1}{16}$ $\frac{1}{16}$



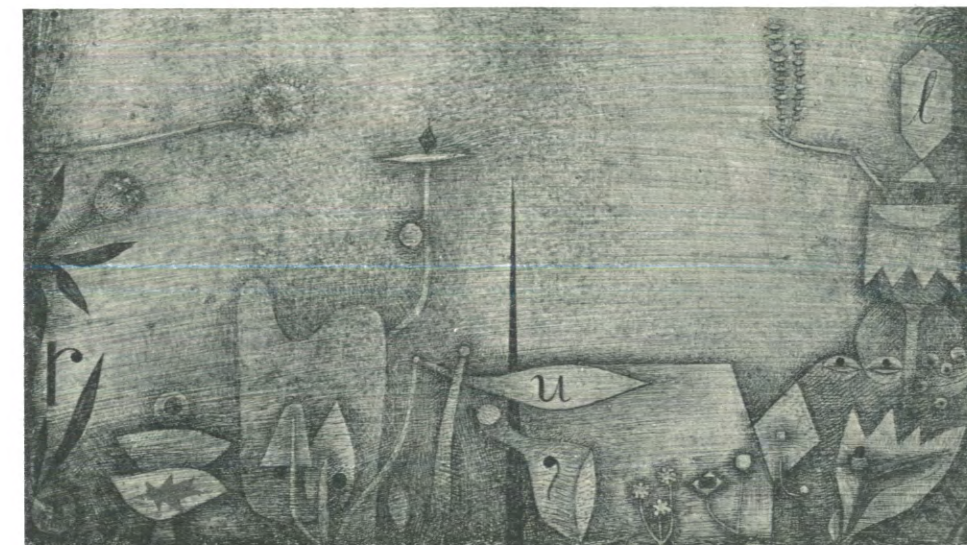


1928/O 5: Image of the initial V.
Watercolour. 28 × 22.

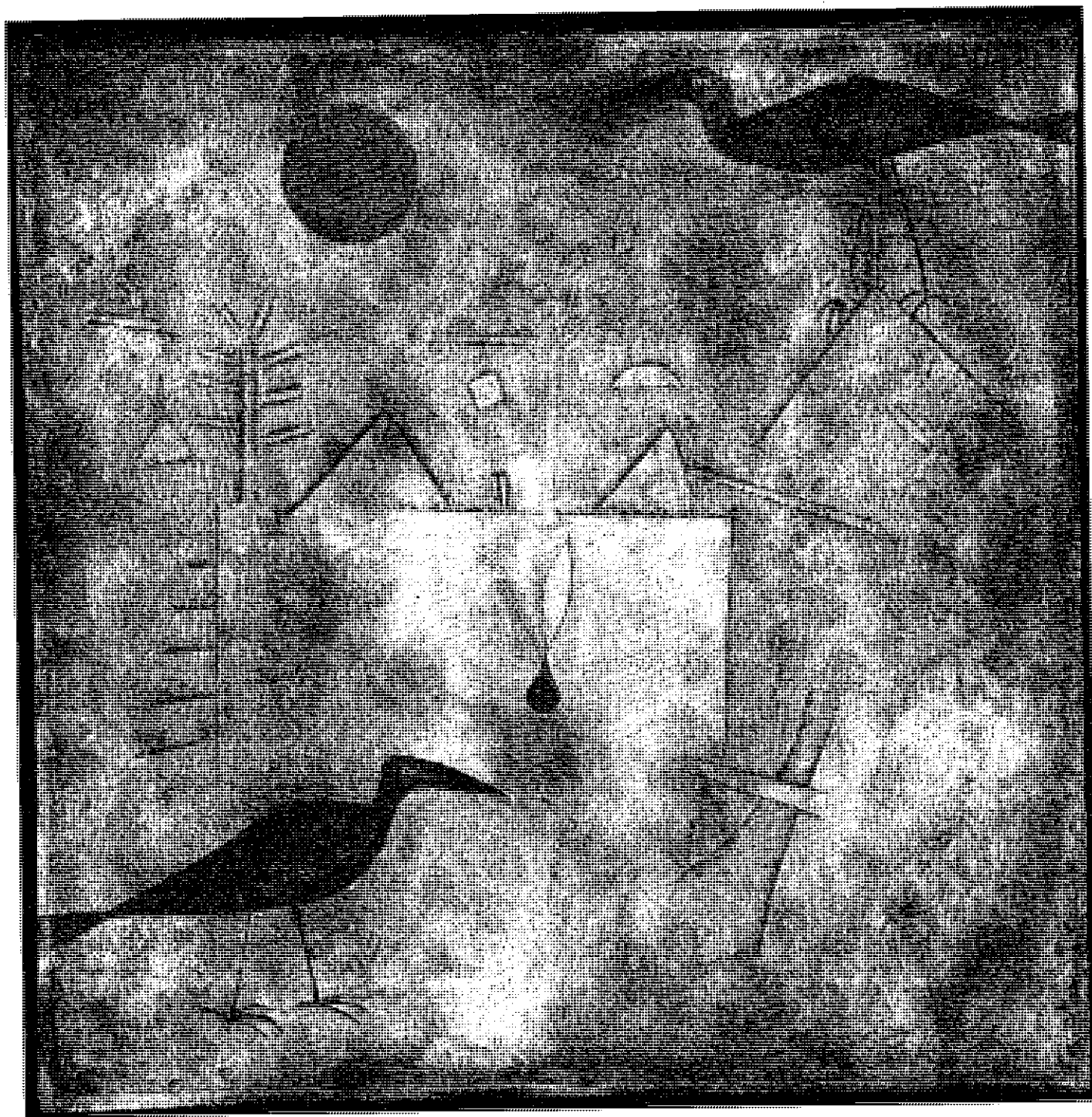
Detail from 1930/e 10 and 1935/36: *Ad marginem*
(written in the margin).
Watercolour and pen-and-ink, varnished, on
cardboard. 43.5 × 32.5.
The lower part of the picture is reproduced.
Cf. Volume 1, p.74, also 1924–34/U 19:
Botanical theatre, Volume 1, p.94.

Linear, two-dimensional and three-dimensional structures
Preliminary creative stirrings
Creative involvement in the actual work
Relation of form and the act of forming
Approach more important than goal
Form as genesis, growth, essence
Elementary doctrine of creativeness
Identity of approach and work
Doctrine of proportions
The analytical approach at several levels

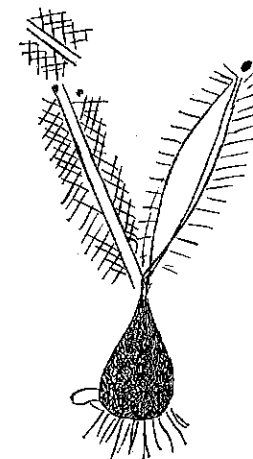
Tuesday, 9 January 1924



After the Christmas holidays, this may be an appropriate time to take a brief glance back over the path we have followed hitherto. Fortunately we can see the distance we have traversed in perspective and have no need to dwell on detail. We can take a broad view of the main elements of what we have done.
What have we actually done during the months just past? What was the nature of our activities? What designations can we find for them?



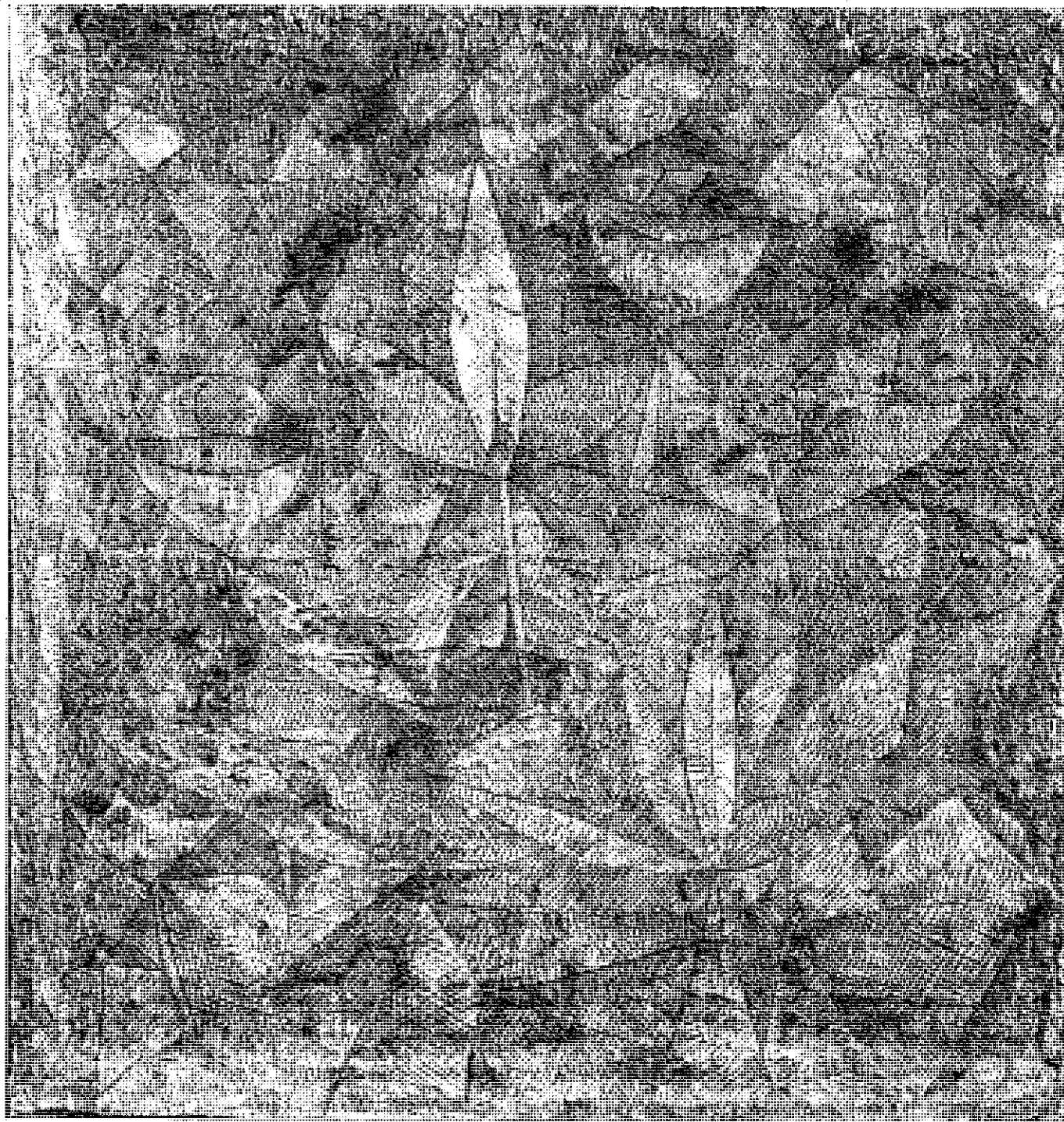
Schematic representation of the seed shown at the centre of the *Landscape with crows*, with leaf, panicle and roots.



When we began – one must make a start somewhere, even though there is no real starting-point – we proceeded from a stage that may be compared with a germinating seed. Initially we dealt with linear structures that branched and did so within a given plane. Leaf stems and veins on the one hand, leaf surfaces on the other. We compared the growth and branching of our line with the growth of plant organisms, and in the case of the apple we passed on from linear structure to the sphere of space. A more intimate consideration of these processes led us to trace the mystery of creativity, the influence of which we felt even in the development of a line. We sought to approach this mystery by enquiring whence it originated and tracing it back to its sources. We were not bold enough to think that we could actually uncover the secret mainsprings of creativity, but we did wish to get as close to them as possible.

We wound up with the irritated point in nature, which we invoked in the course of our consideration – the seed itself. With this seeming start, we reached the limits of our action. The irritated point, our stylus poised to embark on a line – here is minimal action. With anything less than that we can scarcely speak of action at all. But emotionally and intellectually, this point did not as yet constitute the end of our search for sources. The term 'irritated' already sets the scene for an 'active' start. It provides the background for the initial act, ties it to what has gone before, defines its links to the past. The instinctive realisation that we can continue beyond the start finds confirmation in the concept of infinity, which reaches from the beginning to the end, and is not limited to the beginning alone, and which leads to the concept of circulation. In a circulatory process, movement is of the very essence, and the question of a start thus becomes irrelevant. Swept up into such normal movement, we find it easy to develop a creative disposition. We are ourselves moved, hence find it easier to impart movement.

1925/V 2: *Landscape with crows*.
Oil and watercolour on muslin. 43.5 x 44.



- [1] Dynamic forces of varying density with alternating structure.
- [2] Dynamic forces in one direction. Line as limiting form.
- [3] Productive line growth. Widening, progressive enrichment.
- [4] Influence phenomena of a line. Trend towards spatial spreading. Diminishing density away from the limiting line or augmentation towards the border zone.
- [5] Changing border contrast, with accents in inner and outer space. Fluctuating limits.

On the question: 'How to achieve representation, e.g. emphasis on the processes leading to form. Representation by essence, e.g. permeation (as contrast: by semblance). Or representation of the objective-spatial aspect.'

The examples of figuration [1-5] analytically suggest the basic scope. According to the 'physical-spatial tension processes' the limits and the application of graduated emphasis are relative and merge, one into the other.

Cf. Graduated accentuation of the line, Volume 1, p.27.

Corporeo-spatial tension, Volume 1, pp.29-31.

Boundaries of different value for inside and outside, Volume 1, pp.38-37.

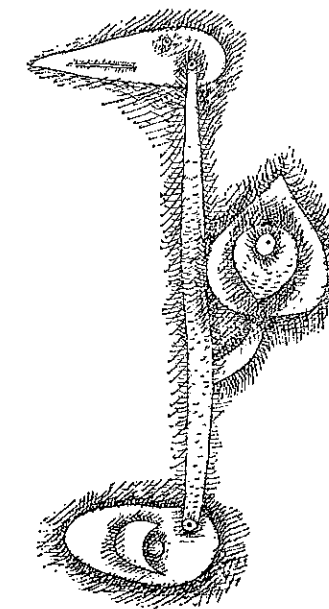
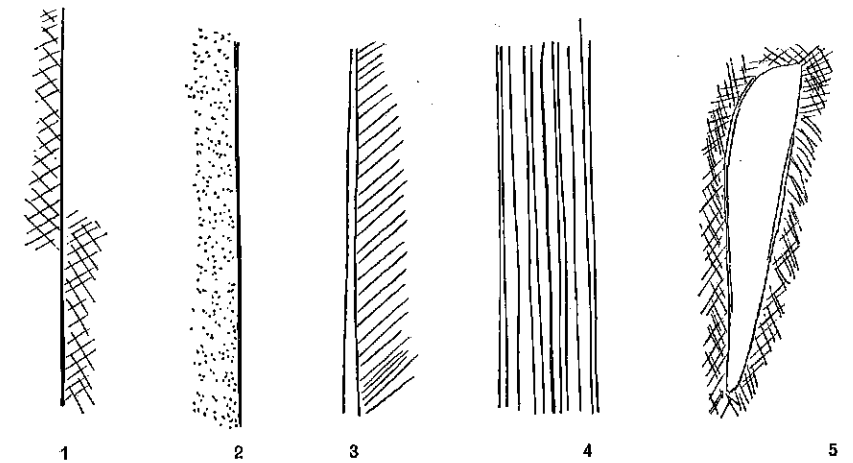
Endotopic-exotopic, Volume 1, p.51.

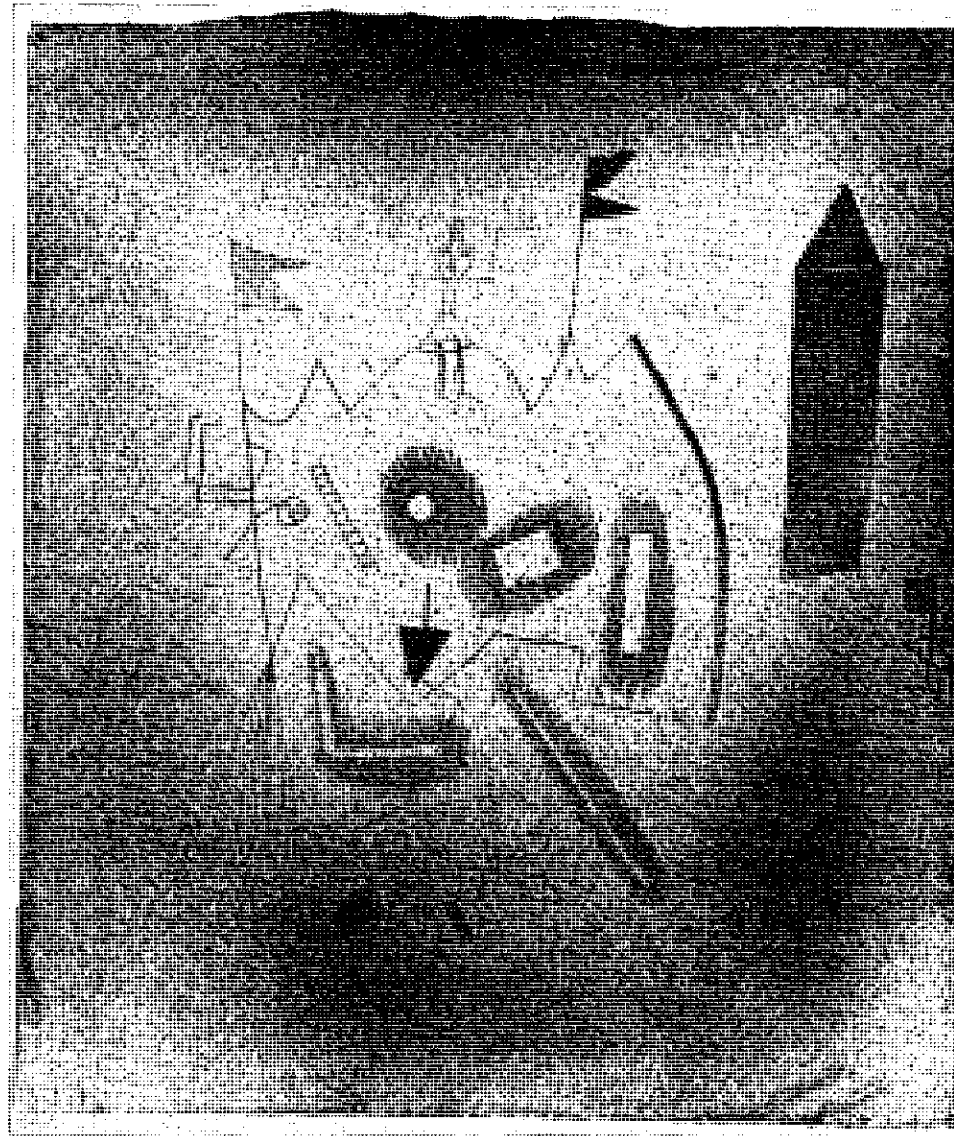
Energies of form-creating nature. Natural growth. Volume 1, Note, p.94.

A theme treated in different ways, Volume 1, pp.129-131.

Basic relations in positive-negative plane formation (and treatment of relief), Volume 1, pp.438-439.

1929/z 8: *Growth on stone*.
Watercolour on a plaster plate. 32 x 30.5.

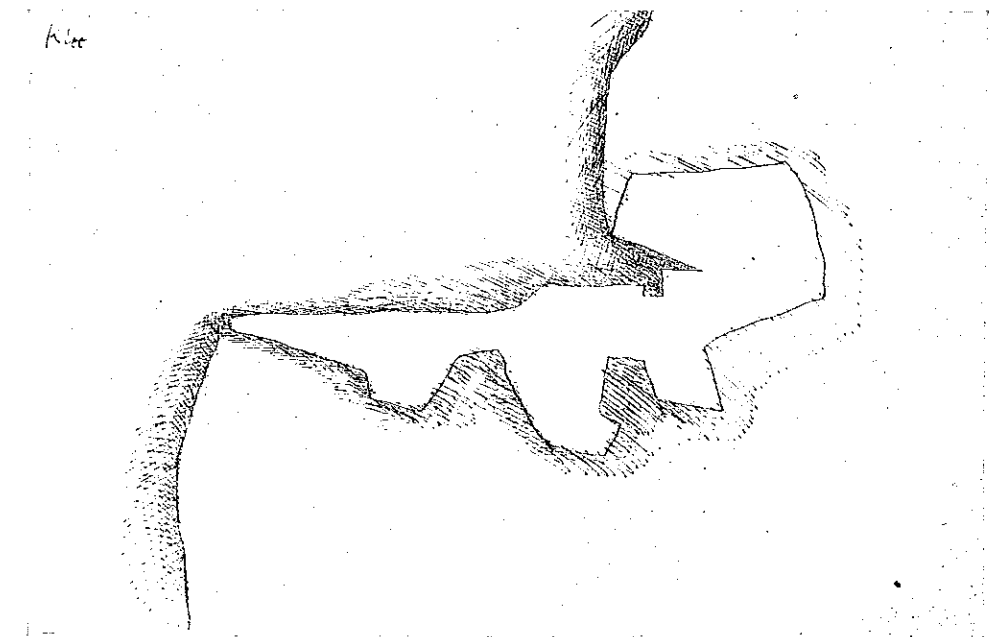




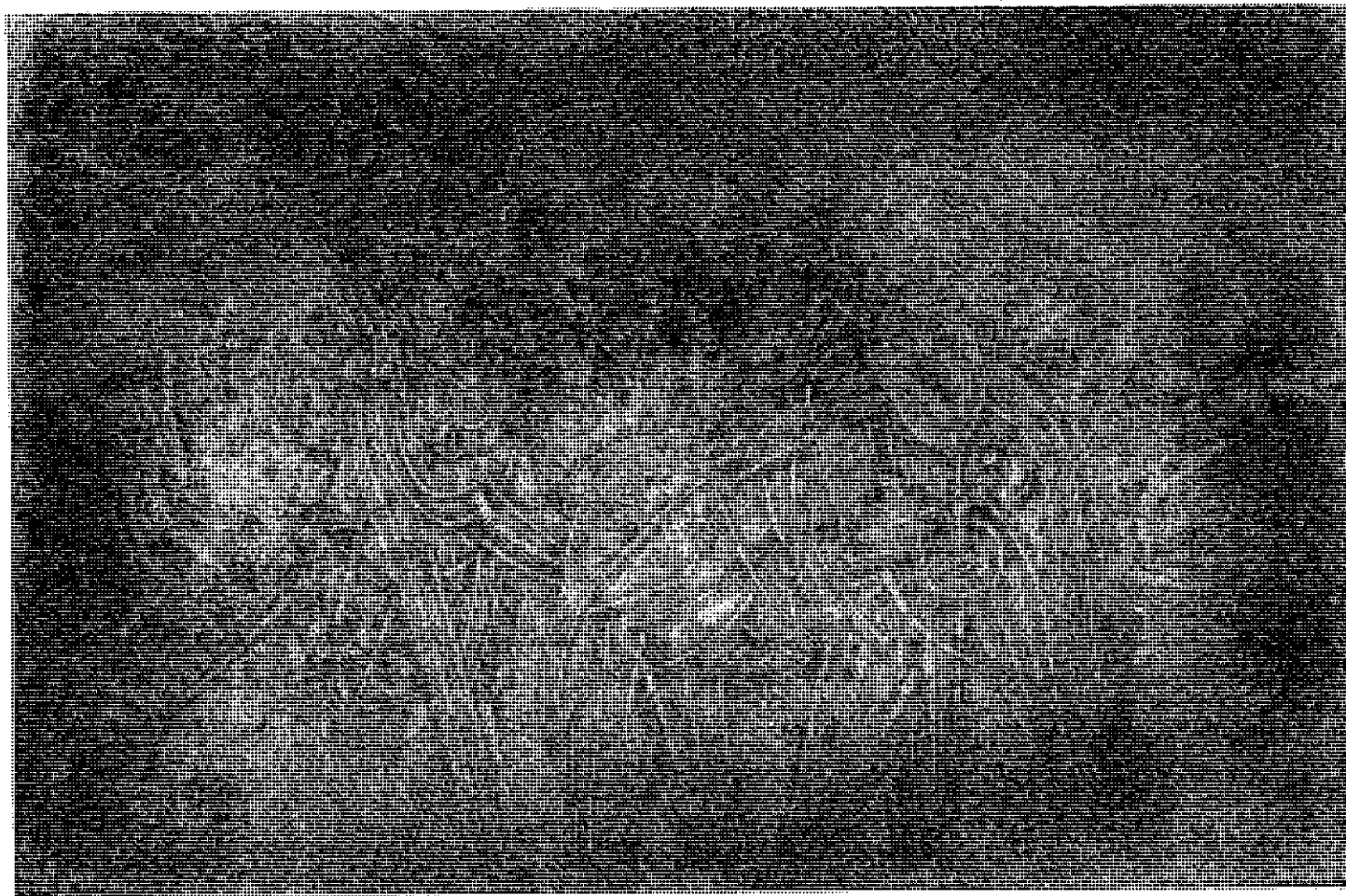
1929/3 H16: *Odd theatre*.
Watercolour and pen-and-ink, 31·8 x 26·6.

1935/qu 11: *Projecting rock*.
Pen and watercolour pigment on paper, 18 x 28.

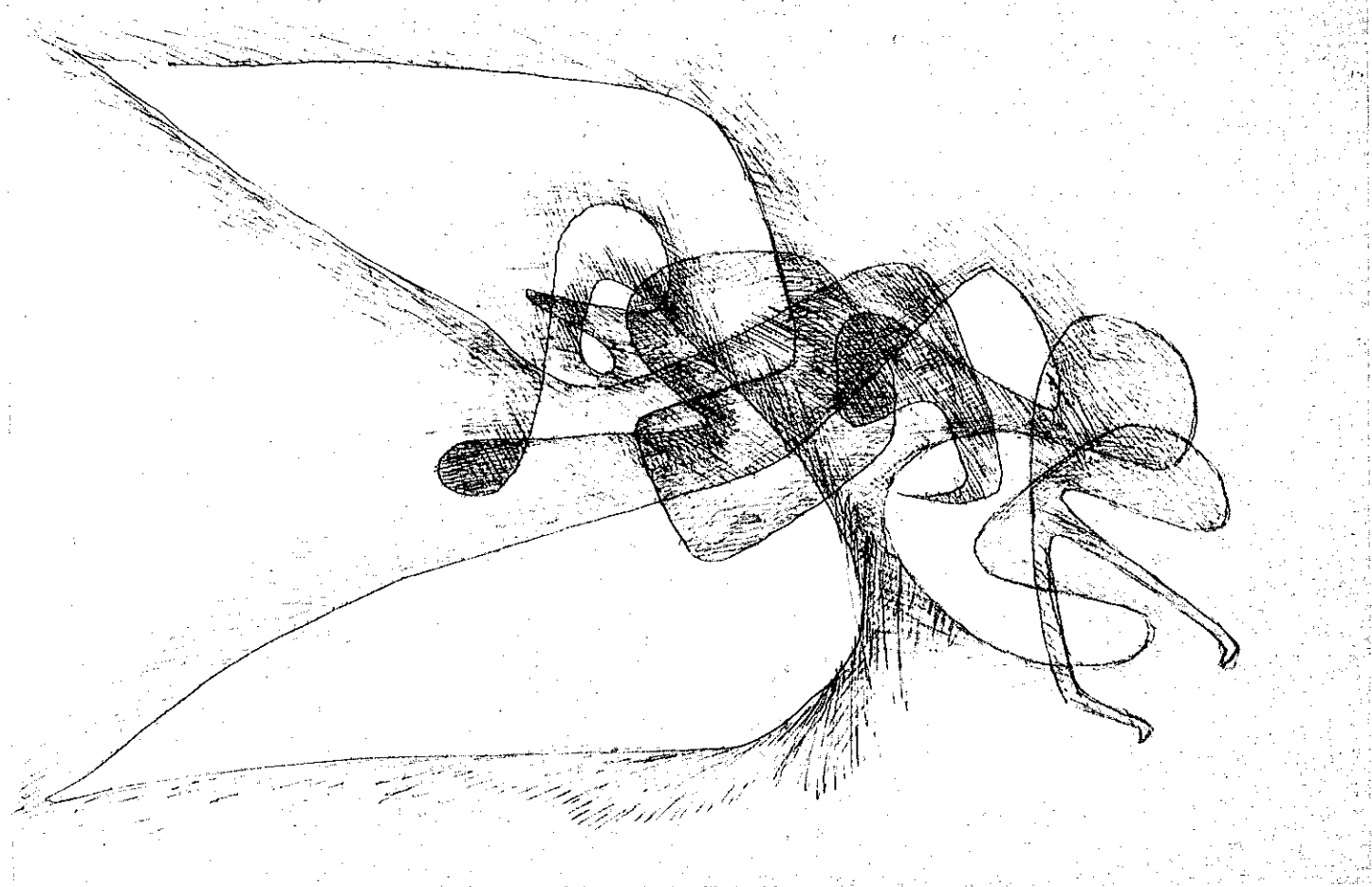
The preliminary stirrings within us, our craftsman's propensity directed towards the actual work and our transmission of this involvement to others, its beholders – these are the main components of the creative totality – pre-creation, creation and post-creation. The inner impulse is the urge that leads to production. As in nature, so with us. Nature is creative, and we are creative. Nature is creative down to the minutest scale and since the briefest scrutiny suffices to discern that, we too have begun on a small scale, emulating nature, it has been easy, under nature's guidance, to recognise our own creativity.



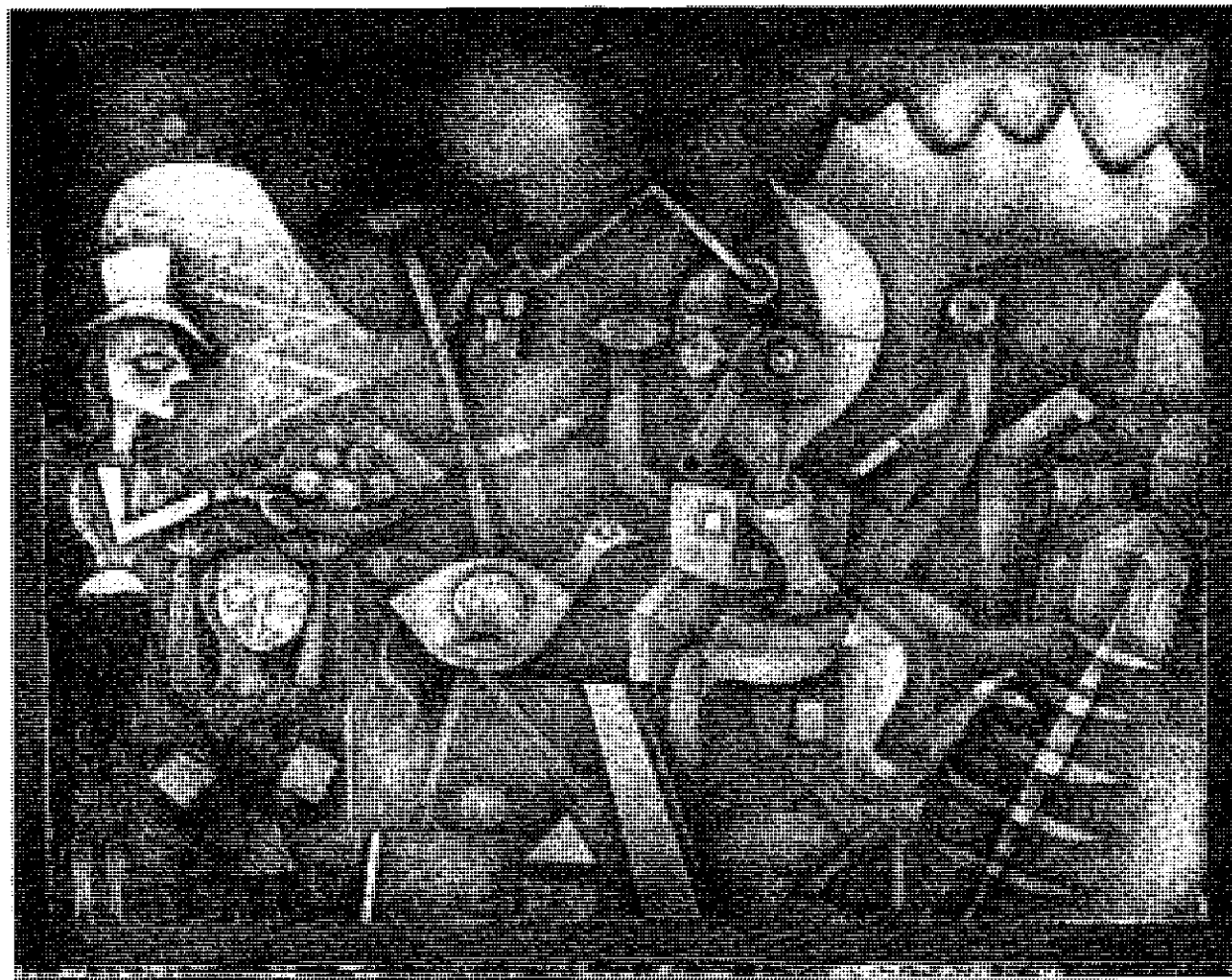
Allowing a primitive and concise output to unfold in this fashion, we took the opportunity to have a closer look at two things: on the one hand the phenomenon of form-giving, in its context with the basic urge, in the sense of a way of life developing from a mysterious motivation towards purposive action.



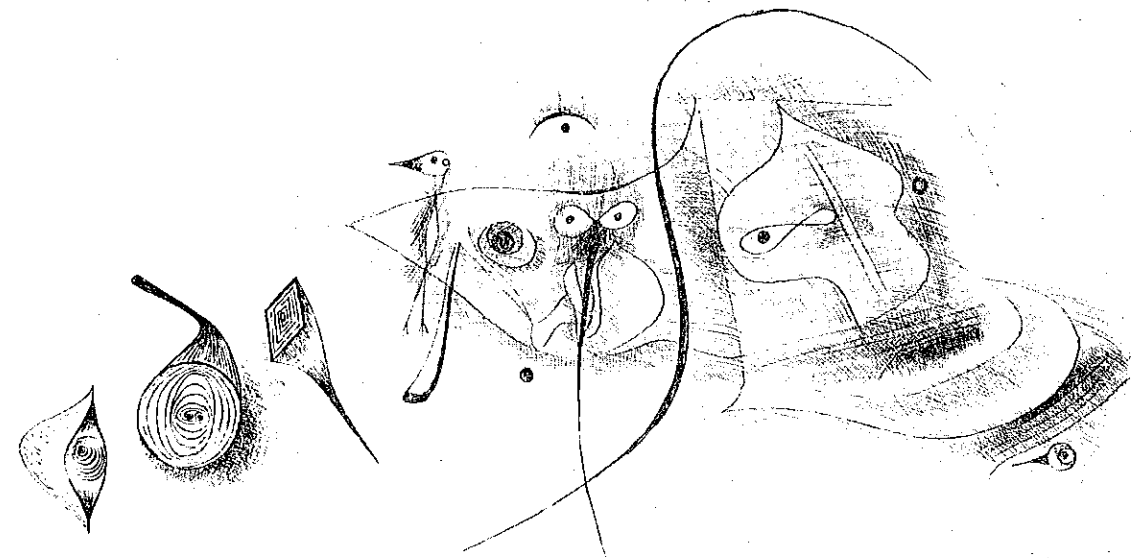
1926/P 2: *Knight with elephant.*
Pen-and-ink and watercolour, sprayed. 21 x 31.



1931/M 12: *Winged.*
Pen-and-ink. 19.5 x 29.3.



1924/114: *Carnival in the mountains*.
Watercolour, 26.3 x 33.



1927/Oe 6: *Context and fruit*.
Pen and India ink, 30.3 x 45.4.

This phenomenon was discernible even in our initial practical work, when form (structure) began to take care of itself on the smallest scale.

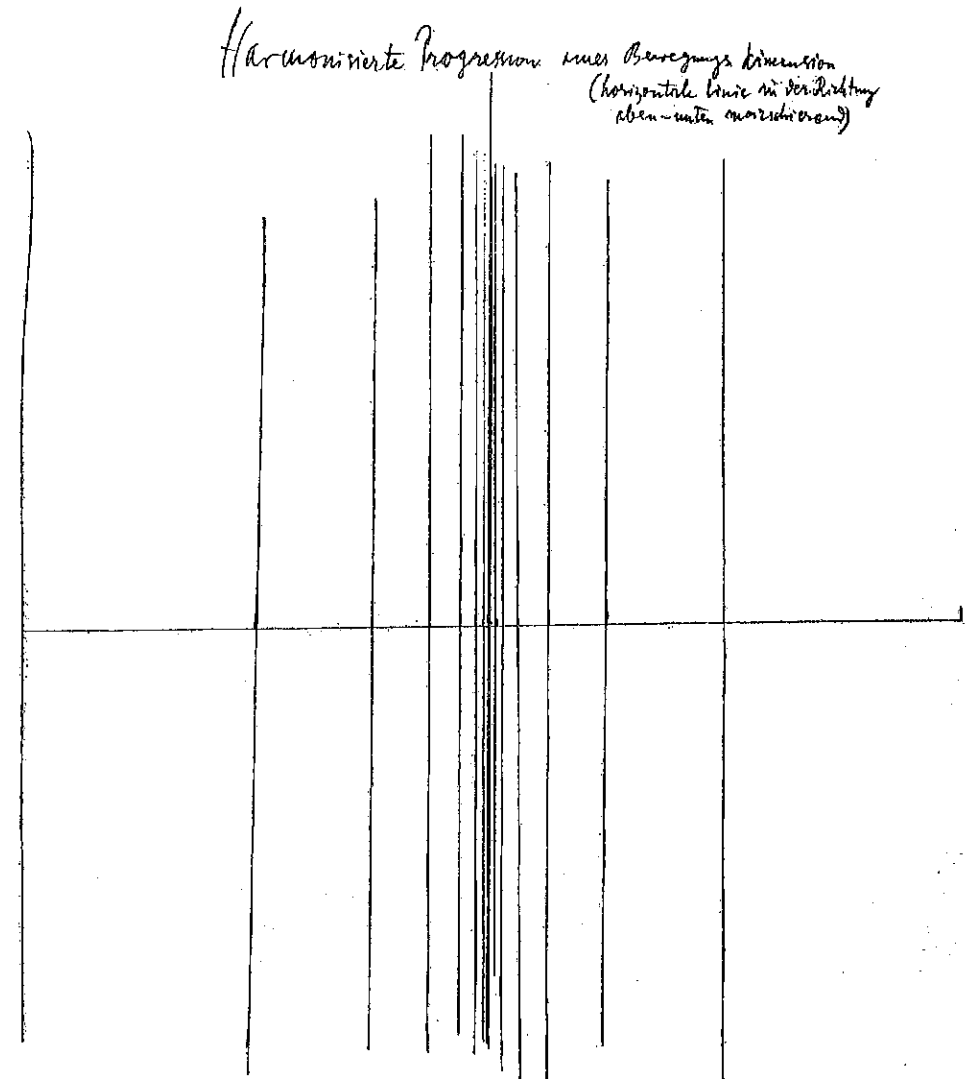
The relation of form and form-giving, recognised and learned on that scale, retained its fundamental importance even during the later stages, precisely because it is a basic principle.

I should like to lay down this significance in a single sentence: The way to form, to be dictated by some inner or outer necessity, is more important than the goal itself, the end of the road.



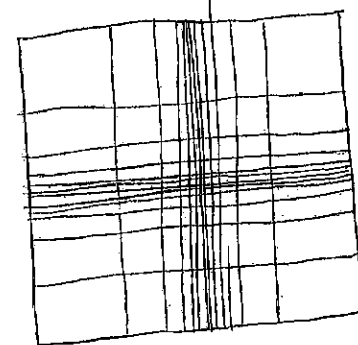
1928/B 5: Second-degree prickly current.
Pen and India ink, 45.4 x 60.

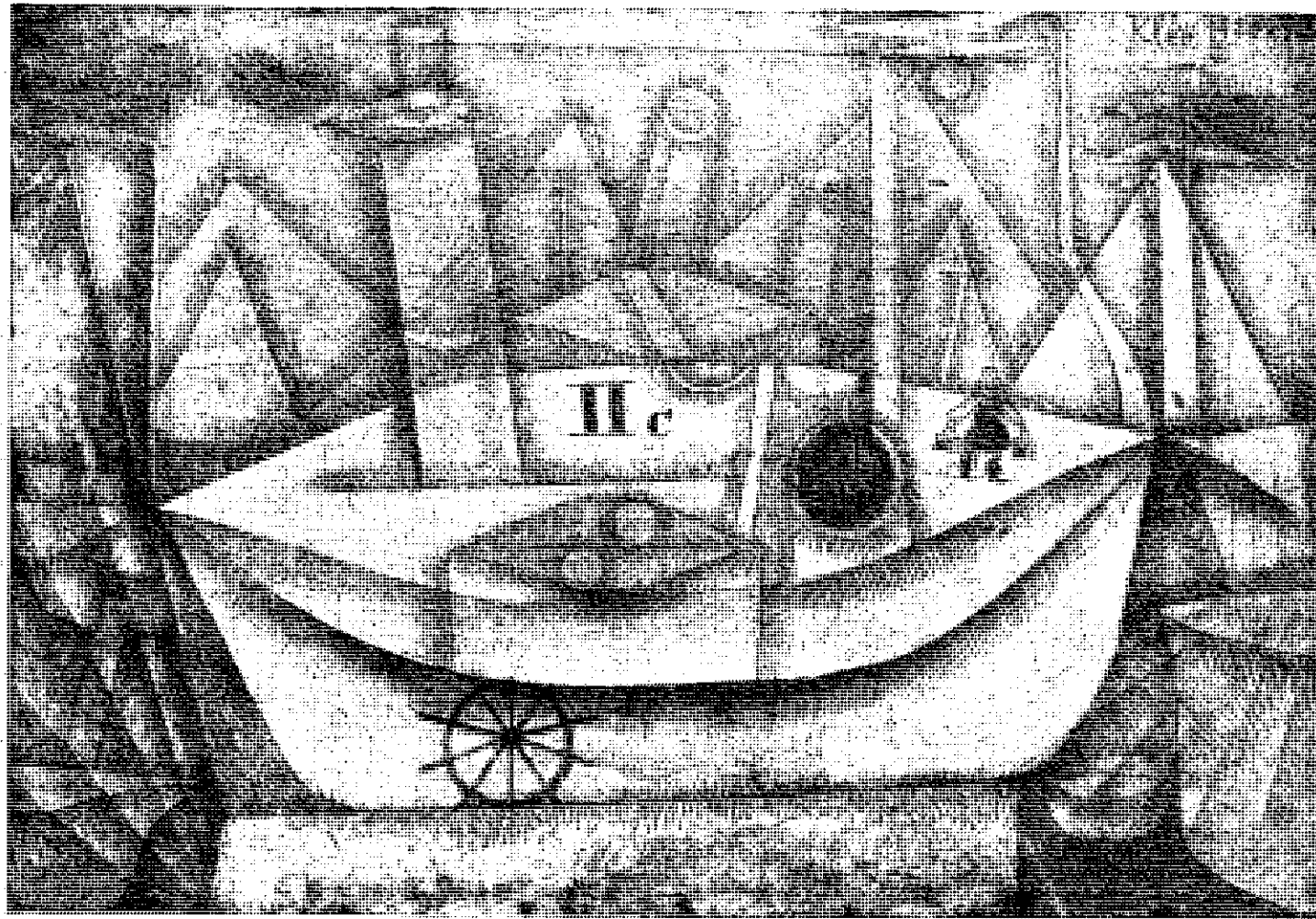
Harmonised progression
of a movement dimension
(horizontal line marching in the
above-below direction).



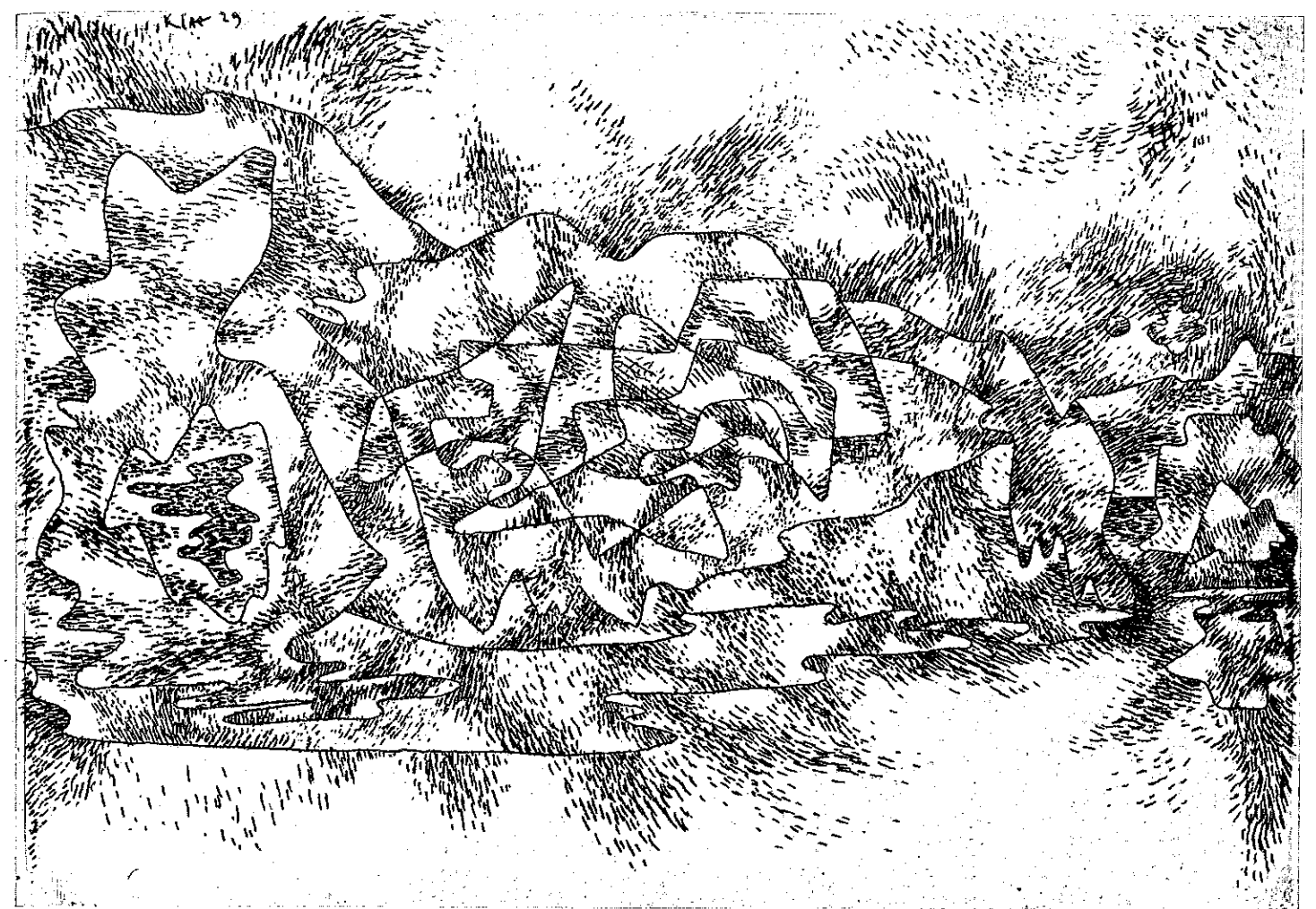
Harmonised progression
of two dimensions
(horizontal and vertical lines
marching in the above-below and
left-right directions). 17/61a.

Harmonisierte Progression
zweier Dimensionen
(horizontale und vertikale Linien
in den Richtungen oben-unten
und links-rechts marschierend)

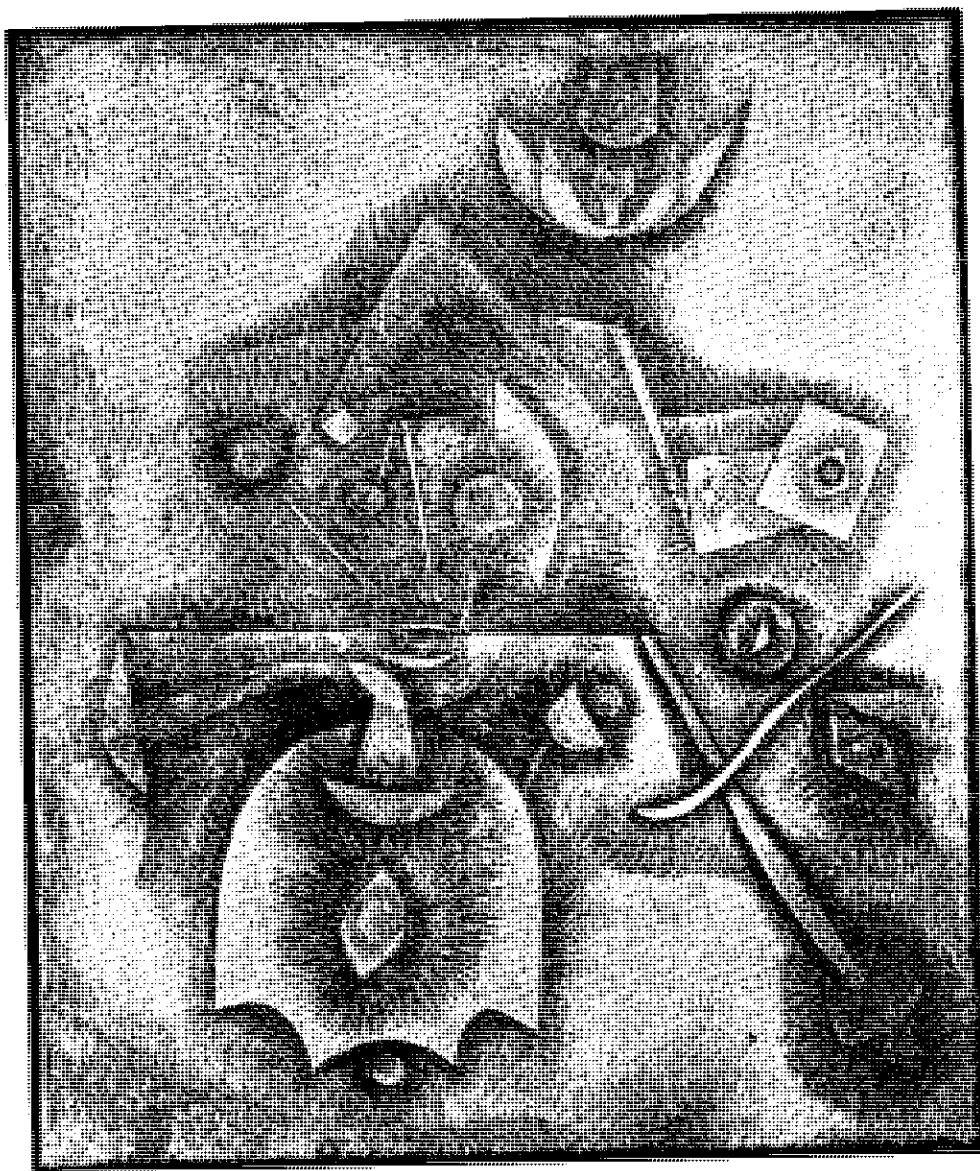




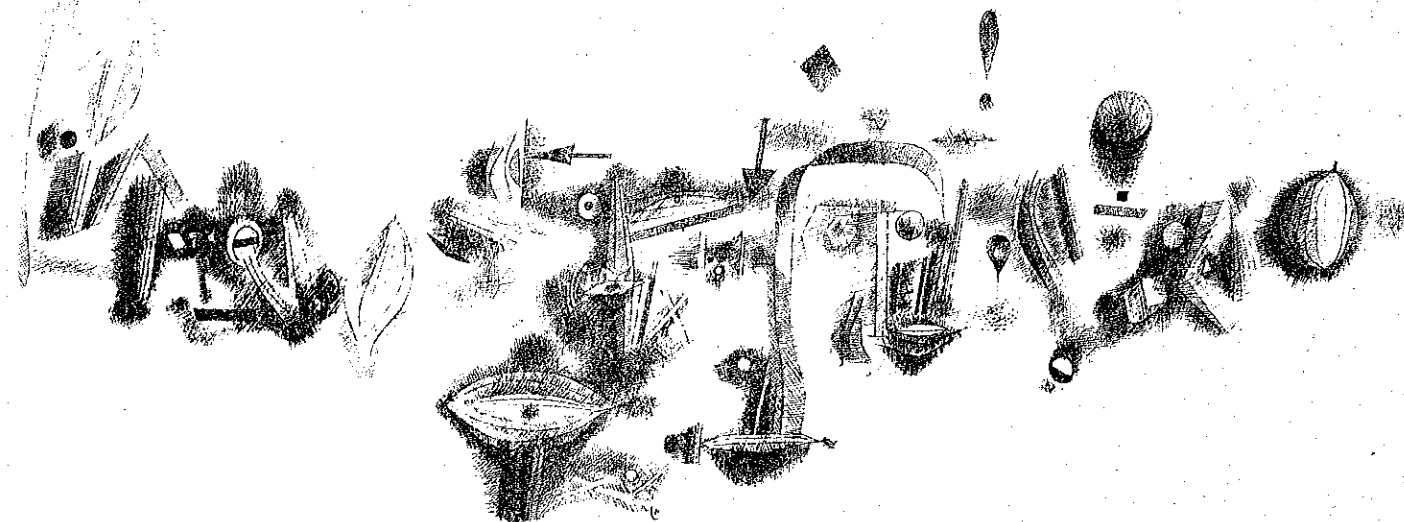
1925/K 5: *Ship II C In port.*
Oil and watercolour on chalk-grounded cardboard.
23 x 34.



1929/unnumbered: *Composition.*
Etching, 15 x 21-8 (full plate size).



1926/Y 7: *March flora*.
Oil on canvas, 26.5 x 21.5.



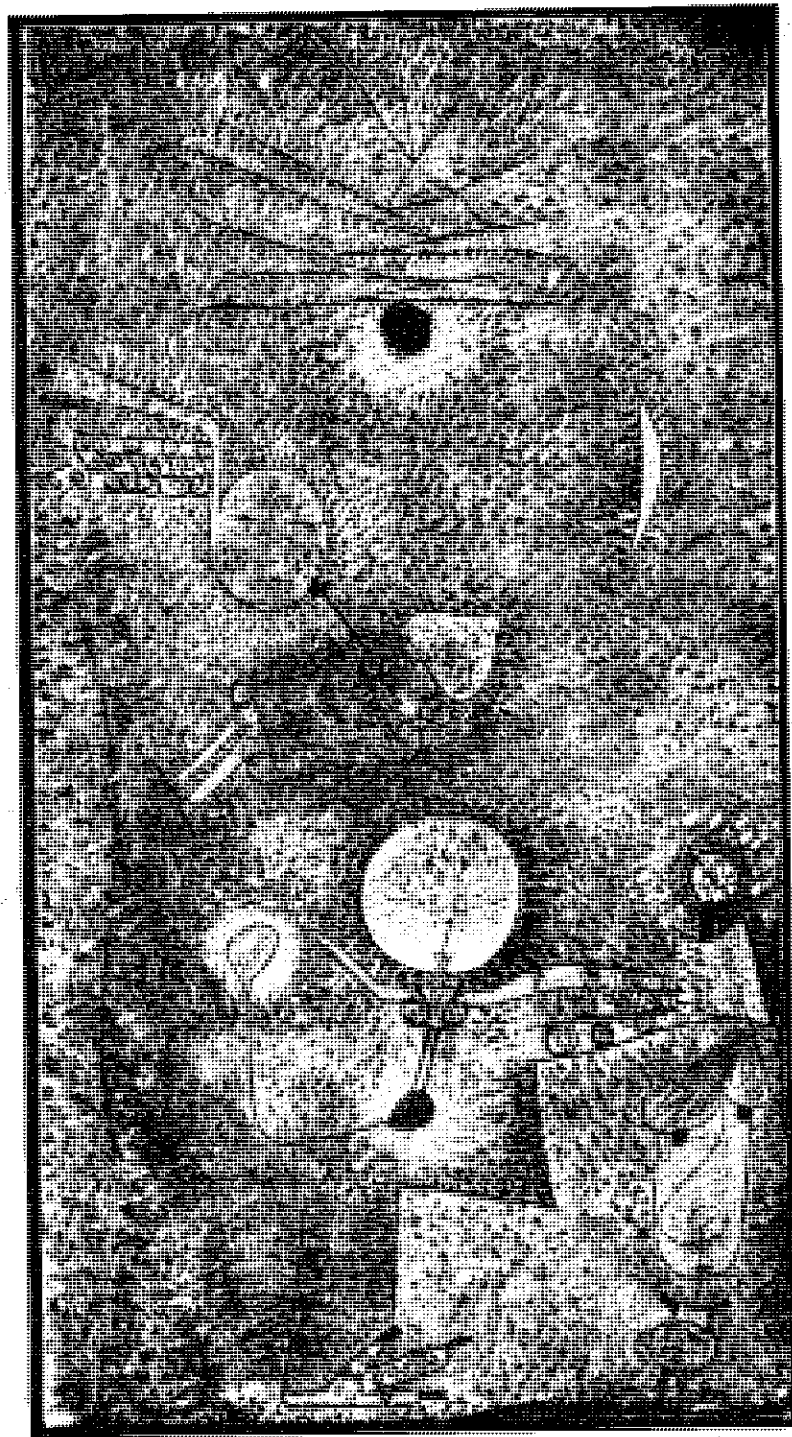
1925/U four: *Dalmonia*.
Pen-and-ink, 25 x 25.

The approach is what counts, determining the character of the work. That character can be determined only once. Form is set by the process of giving form, which is more important than form itself.

Form must on no account ever be considered as something to be got over with, as a result, as an end, but rather as genesis, growth, essence. Form as semblance is an evil and dangerous spectre. What is good is form as movement, as action, as active form. What is bad is form as immobility, as an end, as something that has been tolerated and got rid of. What is good is form-giving. What is bad is form. Form is the end, death. Form-giving is movement, action. Form-giving is life.

These sentences constitute the gist of the elementary theory of creativity. We have now got to the heart of it. Its significance is absolutely basic; and I don't think I can repeat the sentences above often enough.

This was one element that obtruded when we allowed a primitive, concise work to unfold gradually. But then, in the course of it, something else grew manifest to us. In extending the intermediate creative process to a wider and longer path, we realised the need for not keeping this road too monotonous. The approach, as the work's essential dimension, must not tire us. It must be refined, develop interesting offshoots, rise, fall, dodge, become more or less clearly marked, grow wider or narrower, easier or harder.



1922/113: *Destiny at the turn of the year.*
Gouache and watercolour.

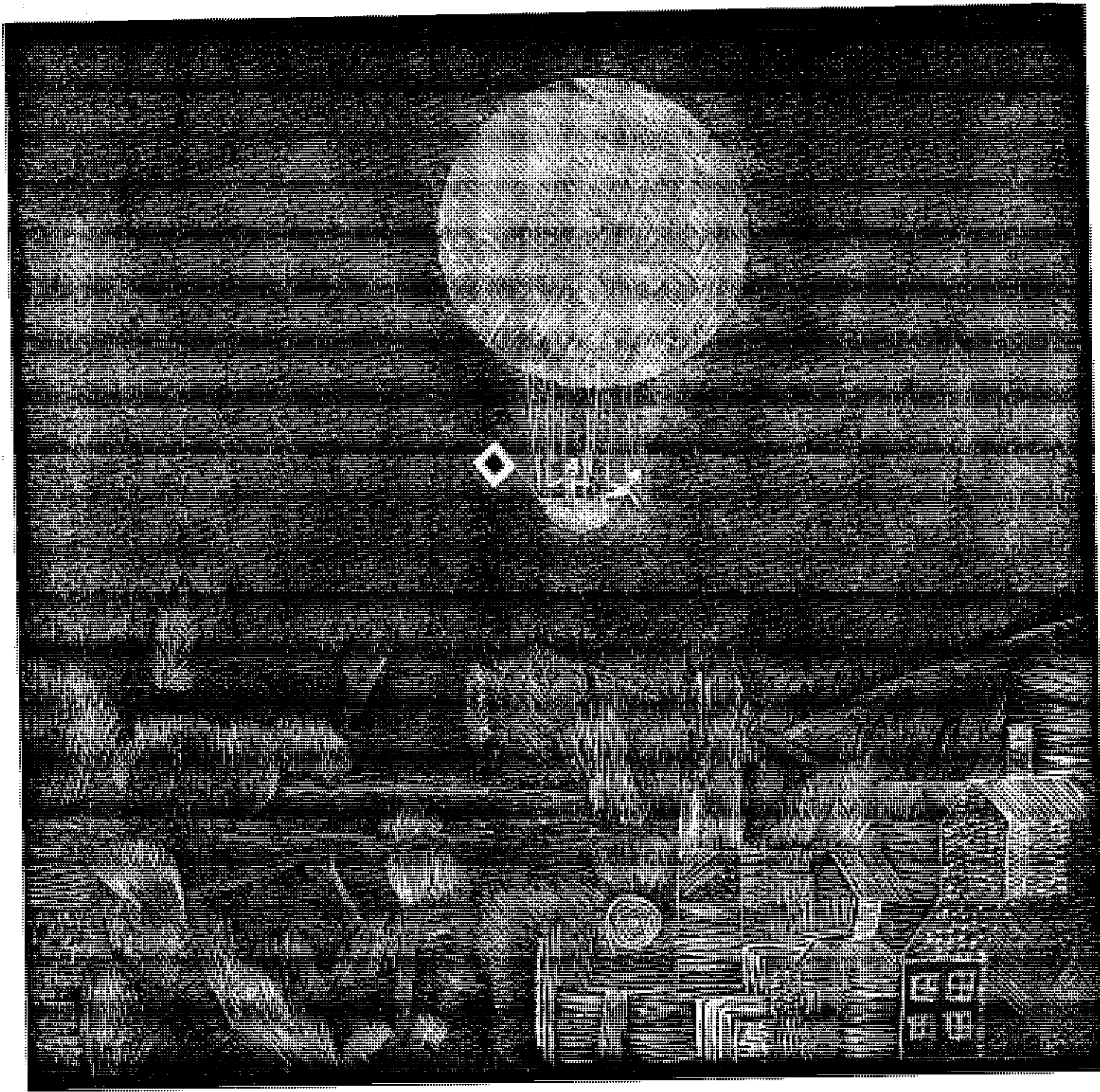


1934/U 11: *De-animation.*
Varnished watercolour on cardboard. 31 x 50.

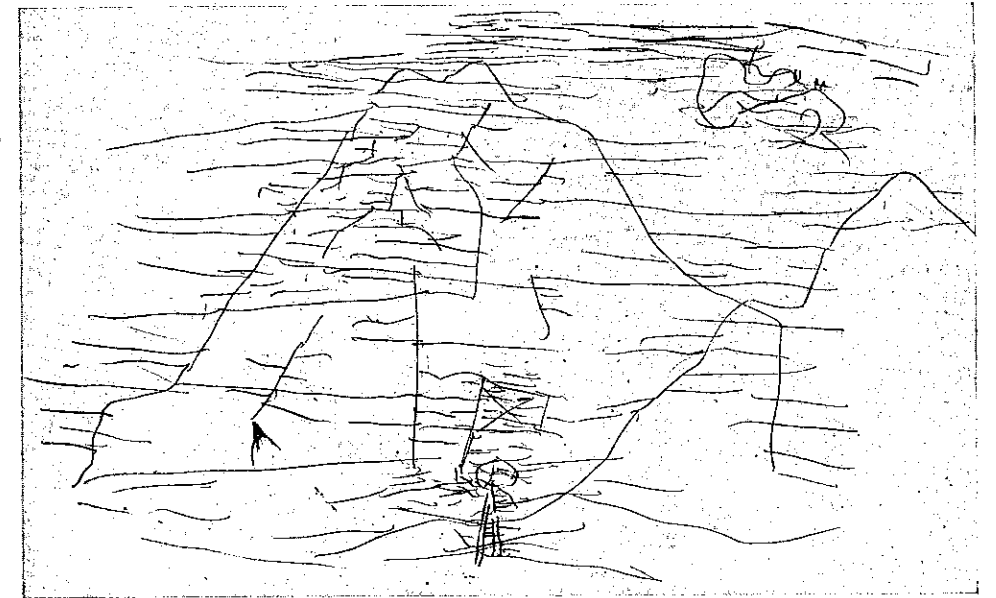
The various sections of this road had to undergo a certain measure of organisation; and although extensive, this organisation had to be held to manageable proportions. The relation of the various parts had to be obvious.

This identification of the work with the approach to it organised itself *en route*, so to speak, moving from a single pace at the outset to several farther along. The various sections traversed had to fall into place properly.

This integration and interrelation of the whole with natural articulation of its parts constitutes the very heart of the elementary theory of proportion.



1929/P 9: *Little ensign at the foot of the mountain.*
Pencil, 21 x 33.

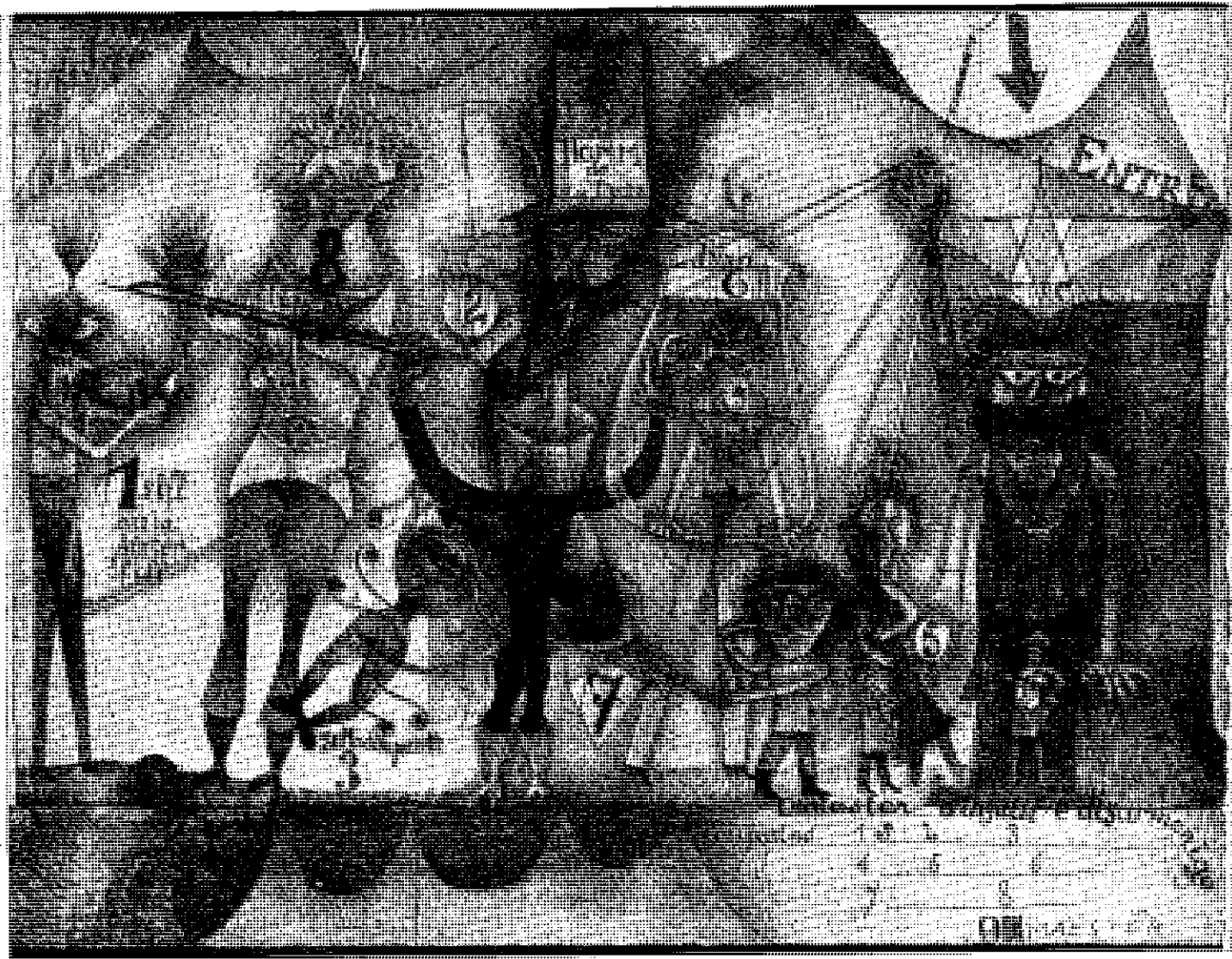


1926/f 3: *The balloon.*
Oil on cardboard, 32.5 x 33.

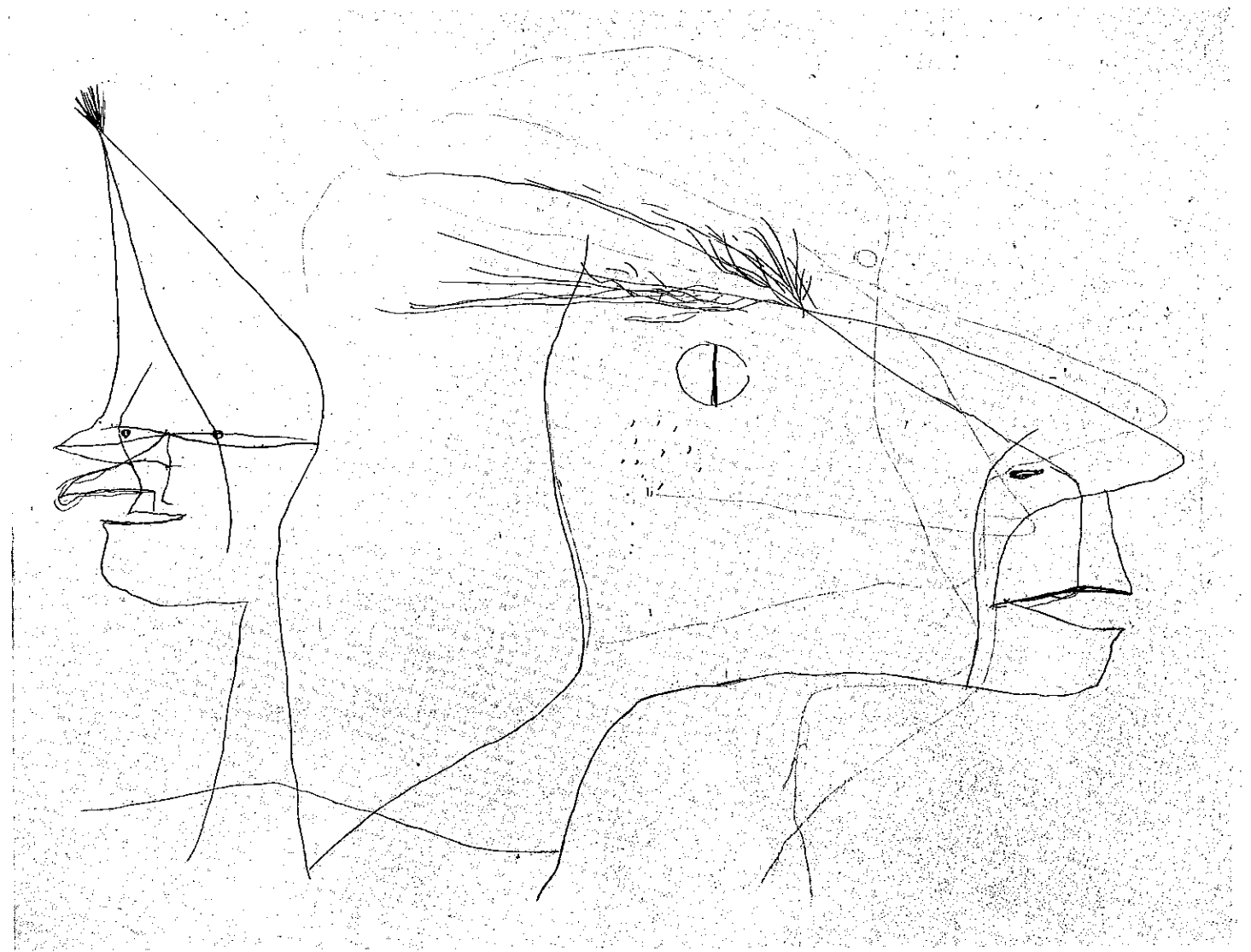
Differences in the character of the work result in different types of integration. Our plodding way has led us through two of these areas, the elementary theory of creativity and the elementary theory of proportion.

Next, of course, we shall put you to the practical test. You will be expected to demonstrate, in modest tasks, what you have learned and how far you have come. Since we cannot really tell whether you have been listening, we shall ask you to progress to autonomous work. Not that we want to turn you primarily into draughtsmen and painters! But we shall have to do a bit of drawing and painting together, since these activities necessarily put us in touch with essential ways in which things hang together.

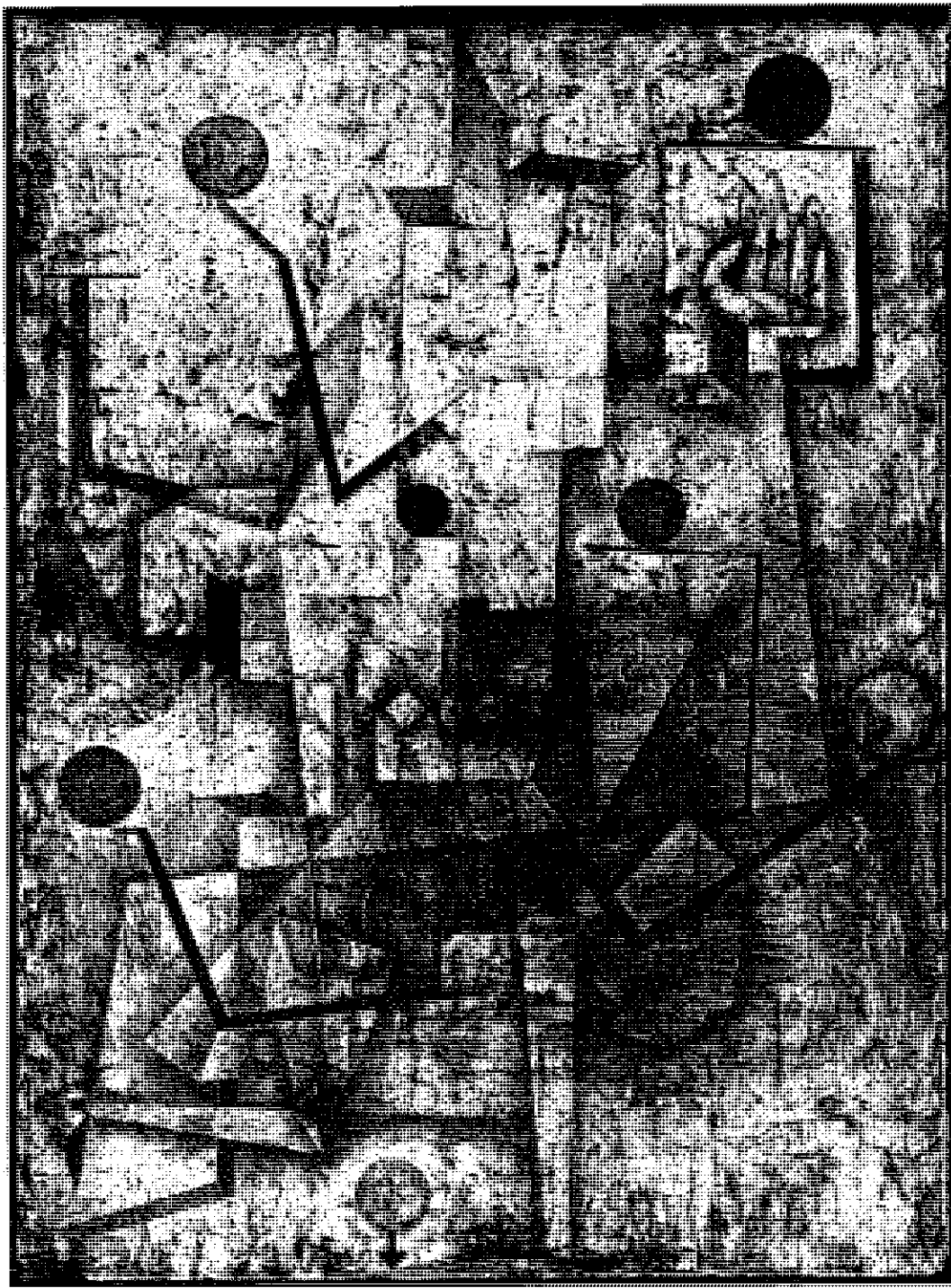
That is the reason that I shall have to introduce you to the various pictorial means on the next few occasions; and naturally I shall be giving preference to the means of line, tonality and colour, since I feel more at home with them than with the more immediate three-dimensionality of sculpture.



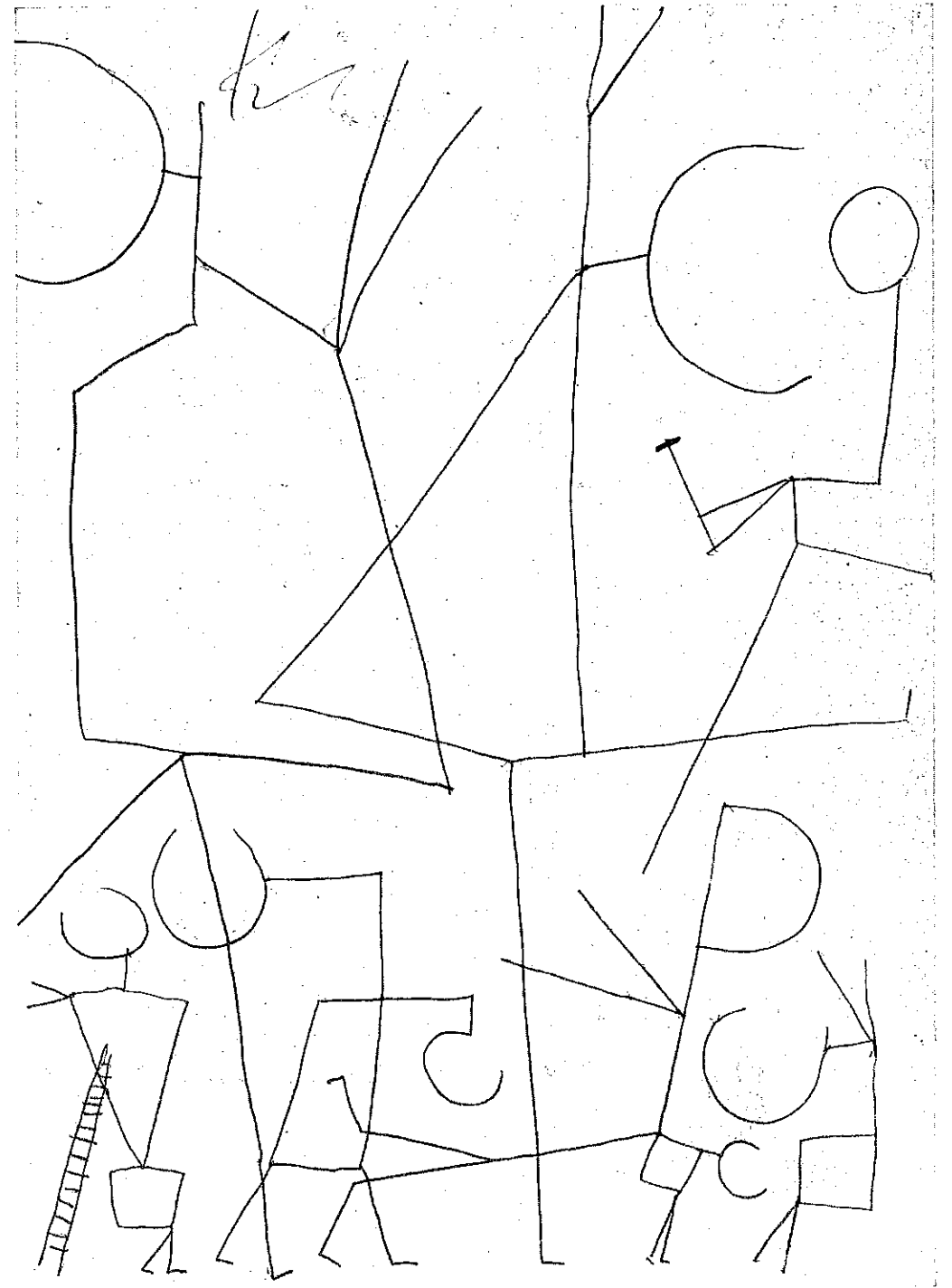
1924/194: *Fairground music*.
Pen-and-ink, crayon, pencil and watercolour.
26.5 x 30.5.



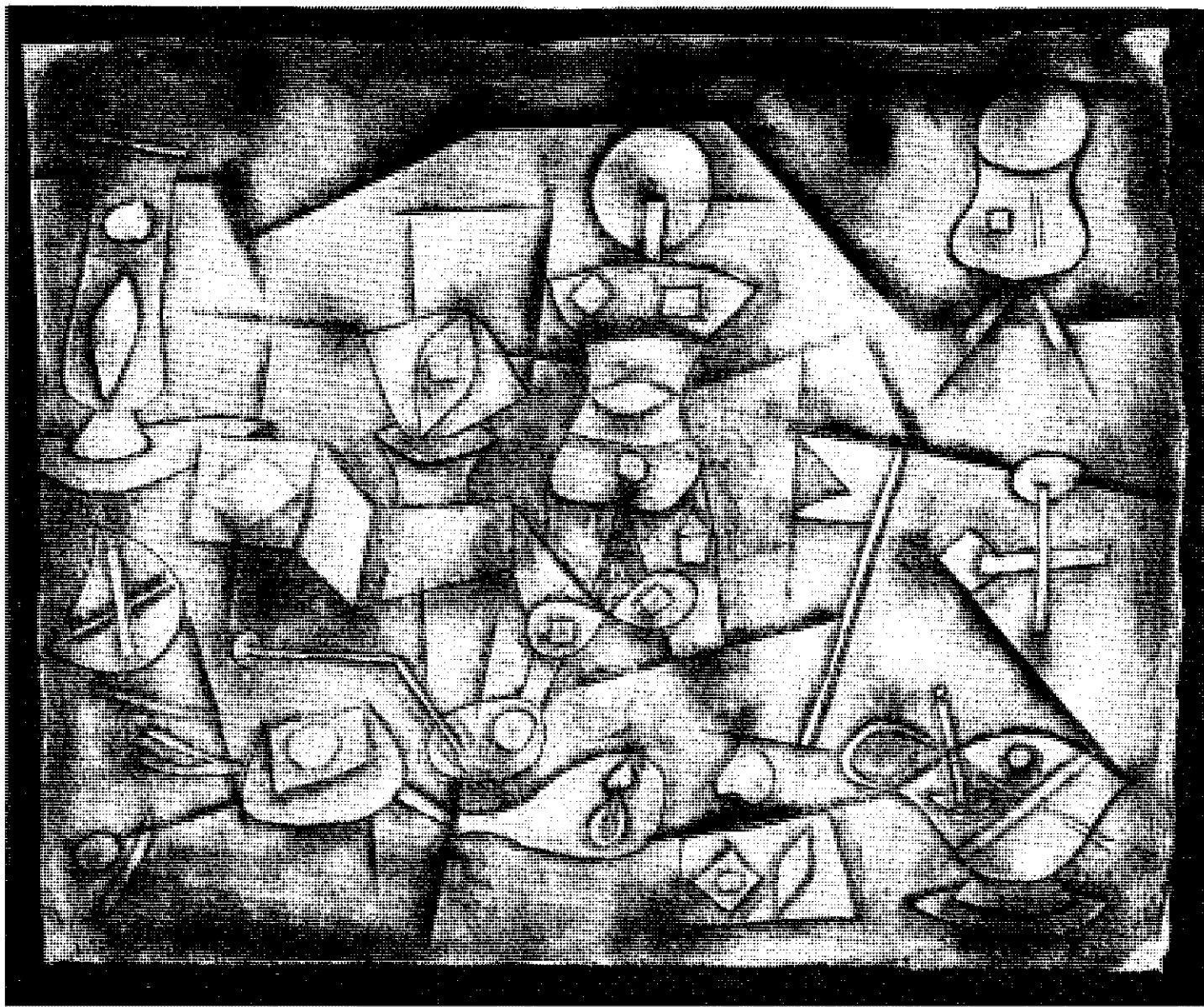
Example of free figuration
from the *Theory of form and figuration*. 7/136.



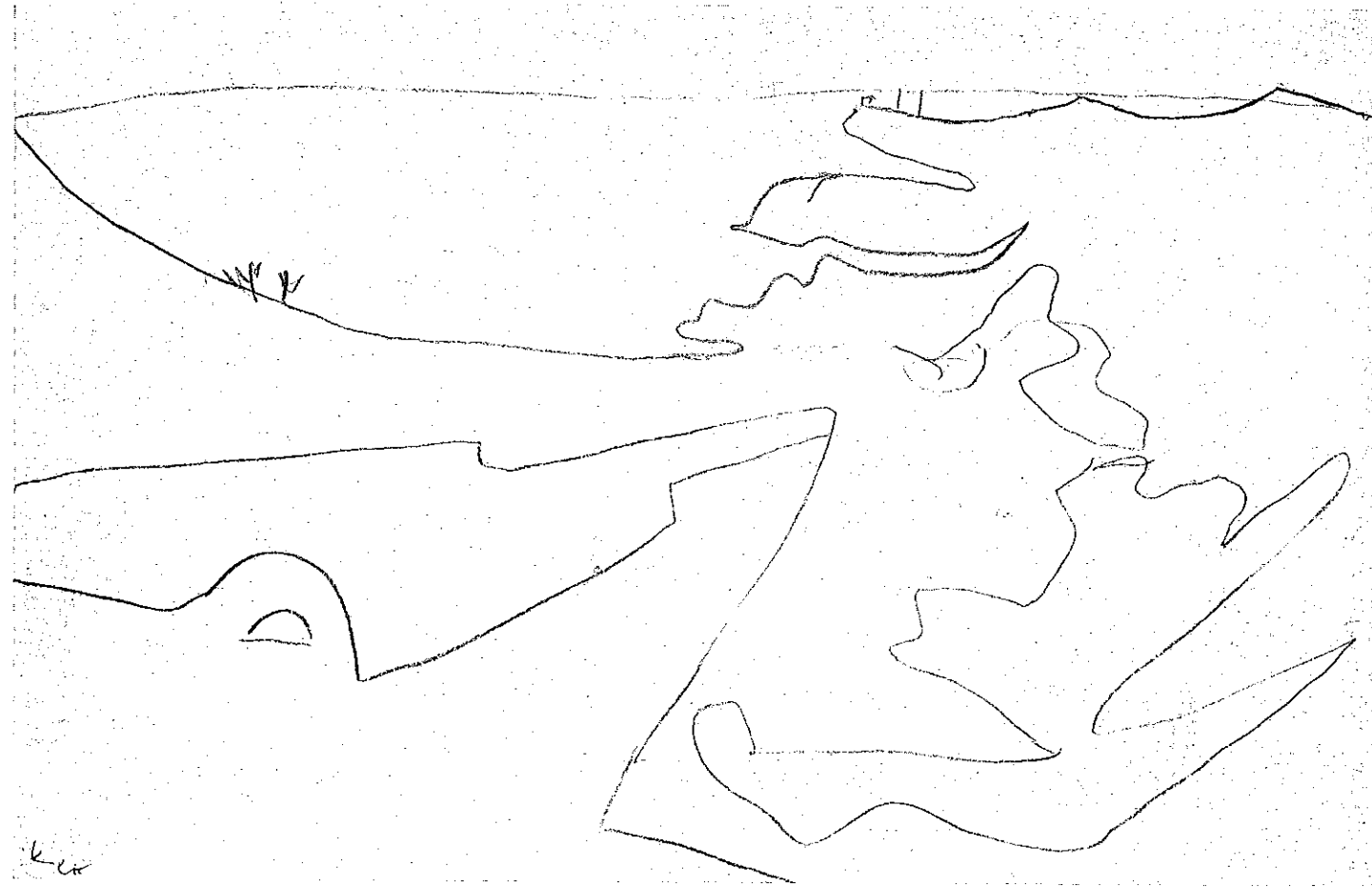
1930/213: *The devil, juggling.*
Oil and watercolour on canvas on paper.
69 x 50.



1939/BC 8: *To work!*
Pencil. 29.5 x 21.



1924/112: *Still life with props*.
Oil on muslin on cardboard, 38.5 x 46.9.



1927/T 6: *Porquerolles (looking south)*.
Black chalk on yellowish notepaper, 21 x 33.



1925/Y zero: *Village in red and blue*.
Watercolour on chalk-grounded paper. 41.8 x 38.4.

¹ The final paragraph, in parentheses, is crossed out in the manuscript.

In all the distinctions I am making, e.g. line, tonality and colour, and in all the sequences and juxtapositions of 'the whole', please bear in mind that these are no more than make-shifts, albeit necessary ones. The theory of creativity, the theory of proportion, the theory of pictorial means and later on the theory of style – all these really have no independent existence. They become integrated into a single whole.

You have only to envisage something that is spatial to grasp the problems that necessarily stand in the way of an analytical approach. But how else is one to achieve orientation in space? I do not know!

All these distinctions, even the most banal ones, make sense if we bear in mind that they describe only partial values and if we do not lose sight of the whole. You can hear people say that they divide mankind into the good and the bad, the large and the small, the thin and the fat, Catholics and Protestants. When such distinctions are taken to be exhaustive, they are merely stupid. If on the other hand we remember that any such pair of statements is only part of the truth, in an analytical sense, they do make some sense. Each such pair – good-bad, thin-fat, etc. – then applies only to its own premise, and taken together these various planes add up to a spatial whole.

In such a context we begin to see that a person may be individually described as possessing a certain measure of height, girth, virtue, etc., but that only their sum total will make up the whole man. If a man be thin, this does not necessarily exclude his also being moral. People have too many dimensions not to be able to be different things at the same time.

So far as our own sphere is concerned, I may, without being misunderstood, make expert distinctions between tall and short on their own, light and heavy on their own, blue and red on their own, static and dynamic on their own, etc.

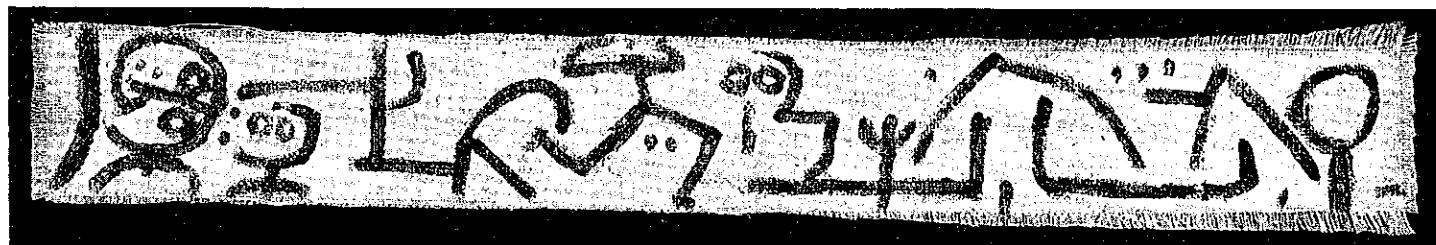
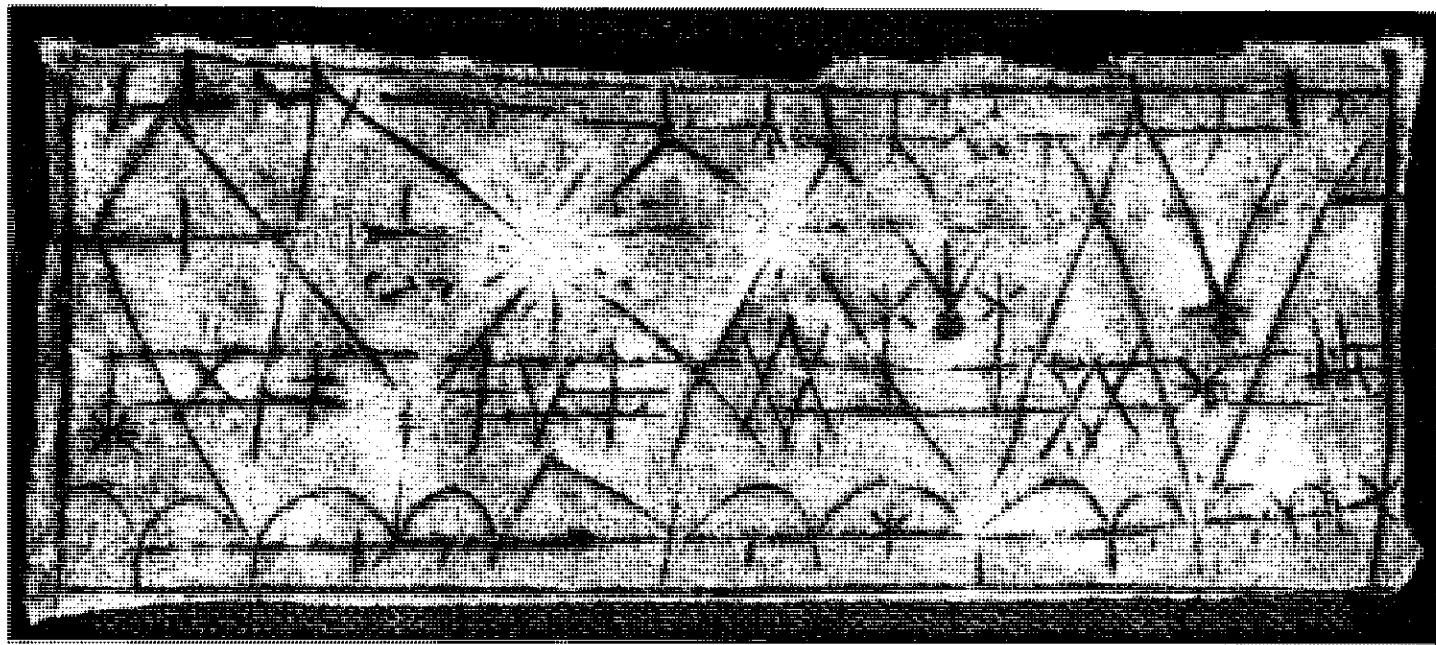
The real reason is that I am debarred from doing what I would rather do, discuss the whole at one stroke – this whole that embraces a very large number of these things, each in its place. Hence I have to settle for the analytical approach.

What I have said applies even to the simple distinction of the three pictorial means, line, tonality and colour, for any patch of colour will have these qualities:

1. A certain hue.
2. A certain degree of brightness.
3. A certain linear contour.

All three of these qualities are apparent at a glance, so to speak. Any colour patch, in other words, is already essentially threefold.

(Imagine the confusion attending any work that has grown far beyond multiple figuration [content!]. Hence orientation! Hence analysis!)¹



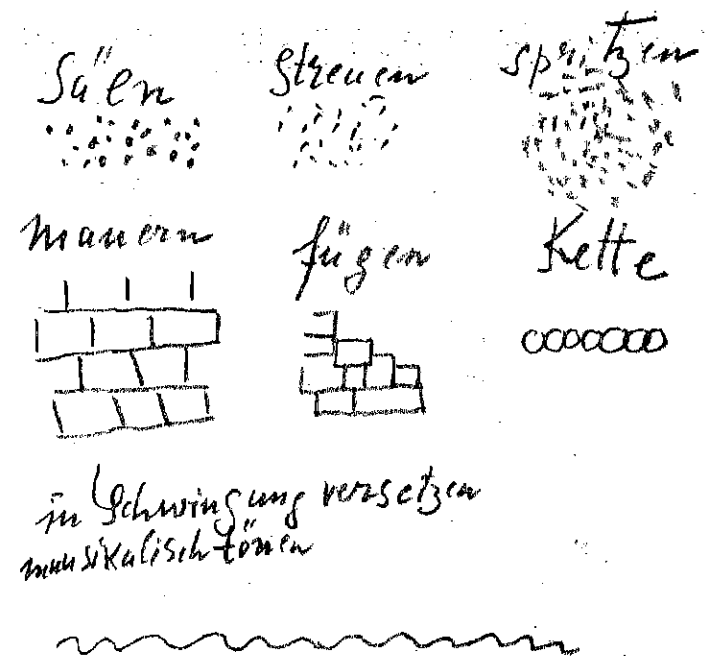
1934/L 7: *Something turbid*.
Oil on canvas. 17 x 42.

1940/unnnumbered: *Head-in-the-air*.
Tempera on jute. 13 x 86.

Sowing
Scattering
Spraying

Bricklaying
Fitting
Chain

Cause to oscillate
Bring forth musical sound

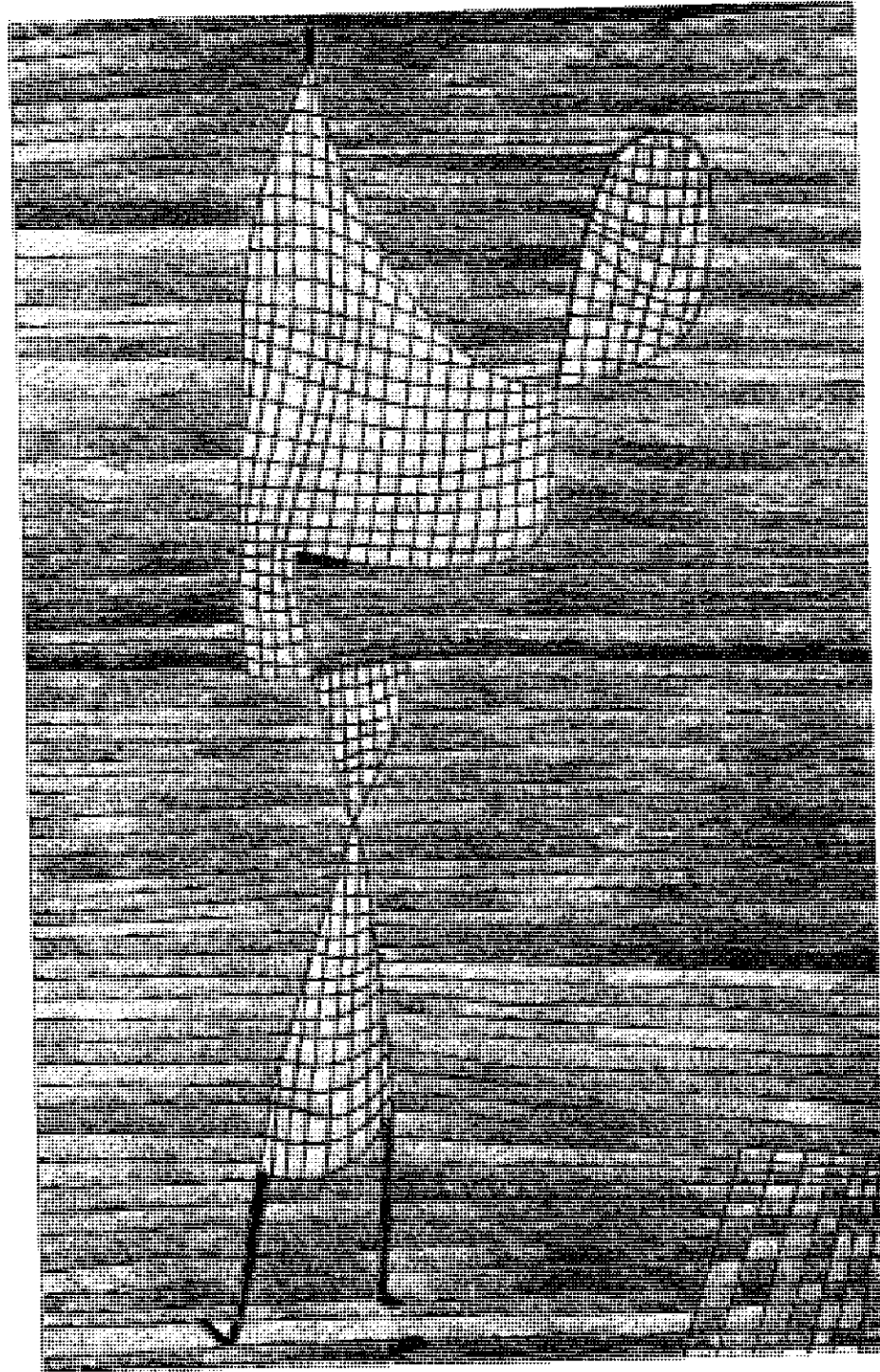


Things that are sown, scattered, sprayed, dusted, star-spangled, etc.

Later on you will be expected to try your hand at practical work in this field. Yet while we should be sensitive to the infinite scope of variation, we must not forget that for the time being we are confronted with a relatively undeveloped sense of proportion and that even as we exercise our ingenuity, we should vary but one element at a time. In doing so, we identify with our material, impart a rhythm to it, make it rise to the first stage above its imperceptible structure (consistency) – and not very much more.

In this process always keep your eye on the higher proportions of individual structure, by way of contrast, for it is from them that form-determination issues.

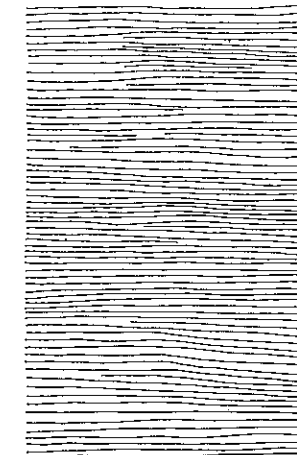
They govern, while structure itself merely lends support, as a pliable material aspect. The governing proportions characterise the ultimate form, the structures make possible their realisation. Only form-determination and form-realisation together yield the higher configuration.



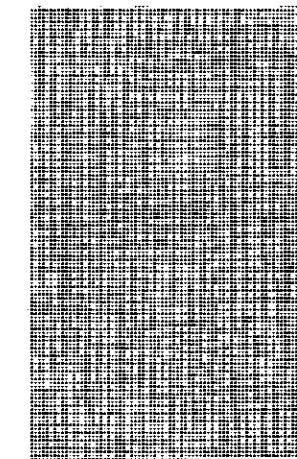
1935/3: *Grid dance*.
Watercolour, 22 x 31.

Formal analysis of 1935/3: *Grid dance*.

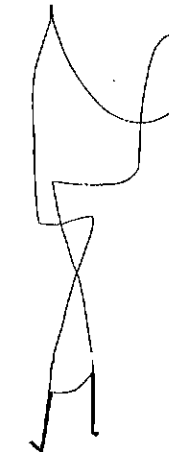
- [1] Layers as dividual articulation (basic static pattern, norm).
- [2] 'Add the proportion of man as the controlling proportion.' This individual articulation is purely linear.
- [3, 4] Movement and countermovement combined (twofold main movement). Dividual articulation.
- [5] Individual proportion and rhythmic structural elements combined. The twofold main movement of the rhythmic articulation [3, 4] underlines the character of the movement of the individual proportion. 'In other cases movement becomes unequivocal in the presence of a basic pattern that is sensually authoritative and fixed in place. Movement grows (or is measurable) in relation to the other fixed dimension.' The sensual scale and standard for the movement process consists of the 'layers' the basic static pattern [1].



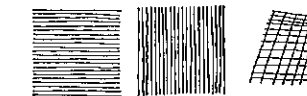
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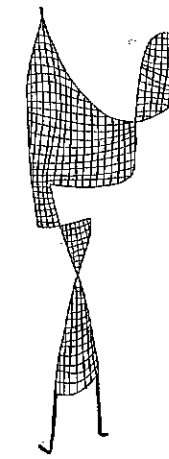
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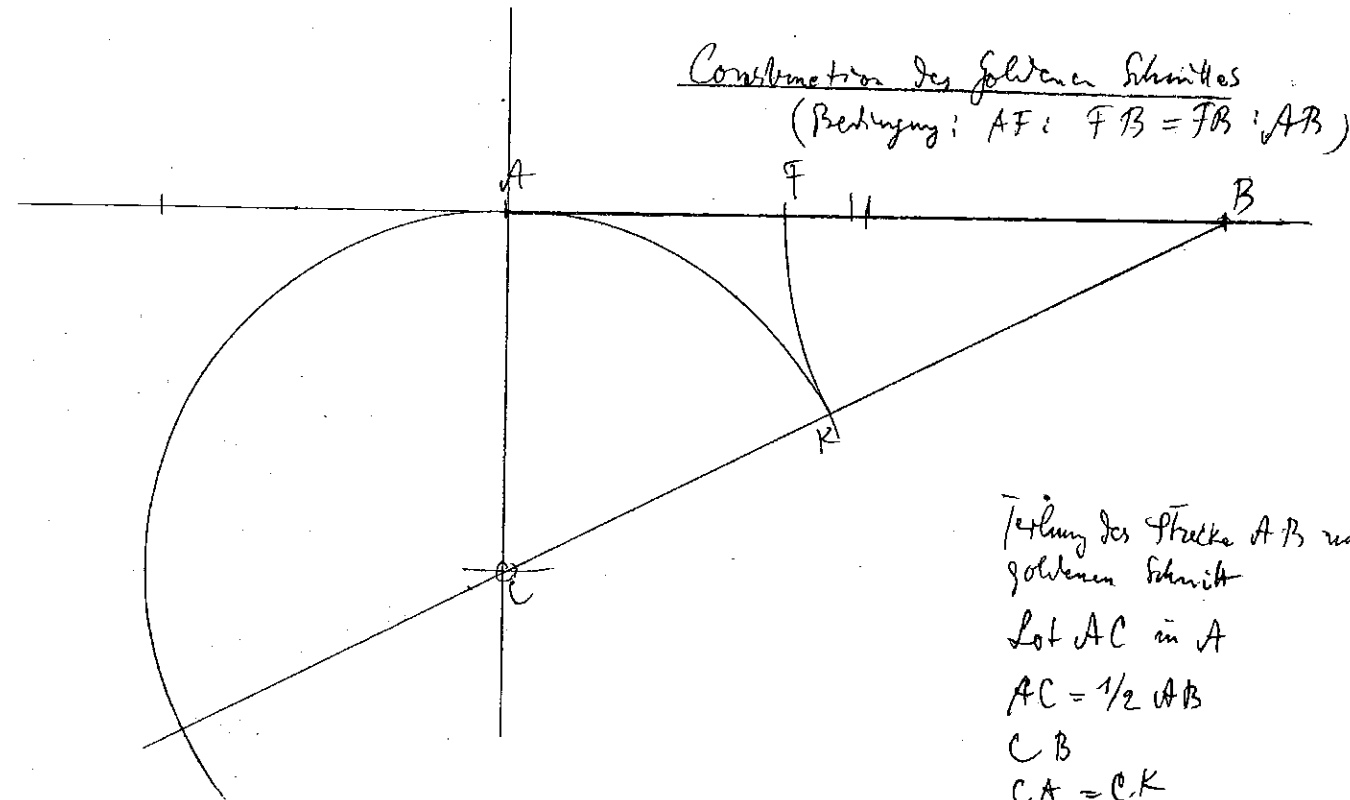
3



5

As for the nature of the governing proportions, I cannot really force such living, breathing things into you. I can only tell you what they are like. I can tell you that the human proportion constitutes such a governing proportion, as we established in the evening life class. As human-beings, we have it within ourselves and about ourselves. That we have it within us fits us particularly for creative work. Let those of you who insist on precise characterisation envisage the two contrasts expressed in numbers, approximately as follows:

The structure of one is to one as one is to one.



Division of the line AB
by golden section

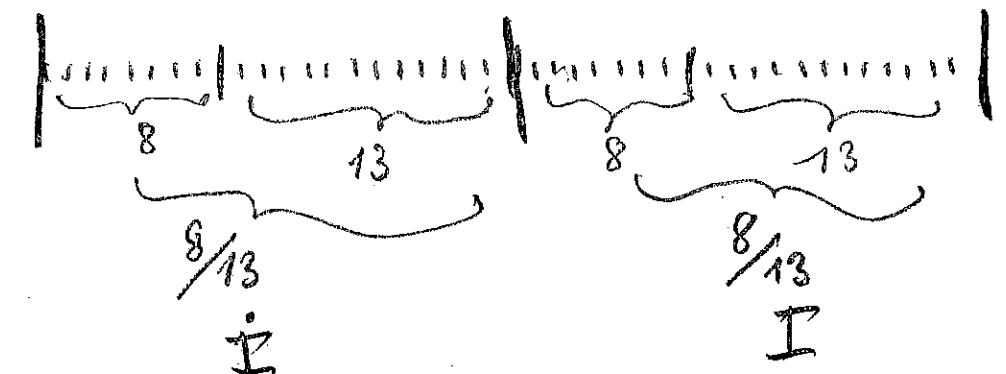
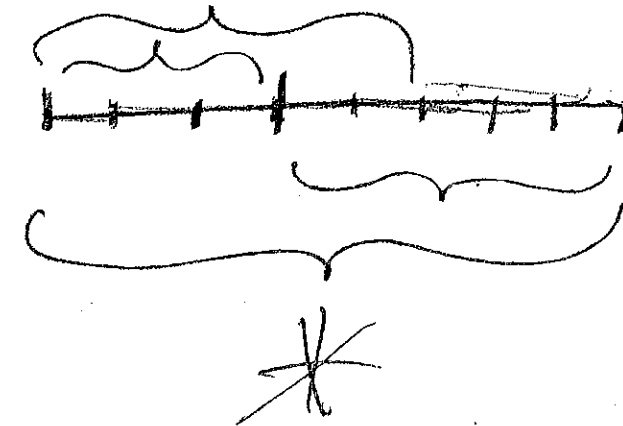
Draw a line at right angles to
line AC through Point A
 $AC = \frac{1}{2} AB$
CB
 $CA = CK$
 $BK = BF$

¹ The example relates to the proportion of the 'golden section'. Division of a line into two parts in such a way that the smaller part has the same relation to the large part as the larger part has to the whole line.

Cf. Construction of the golden section: Basic progression and golden section.
Golden section: Absolute symmetry and relative symmetry.
Golden section: The circles, pp.296-297.

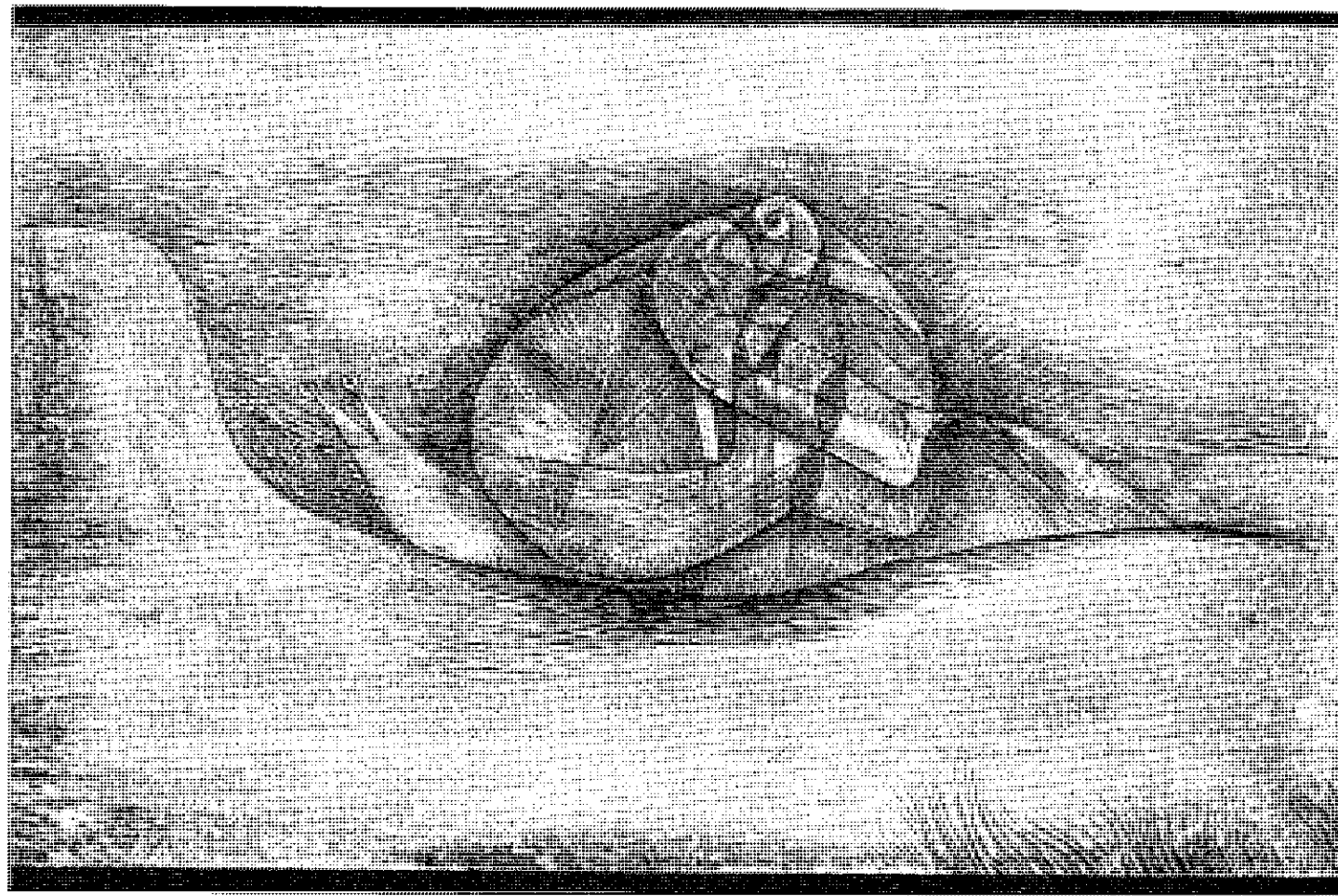
$$3 : 5 = 5 : 8$$

$$8 : 13 = 13 : 21$$



Individuality in a standard example.¹

The smaller part is to the larger as the larger is to the whole.
 $3:5 = 5:8$
 $8:13 = 13:21$

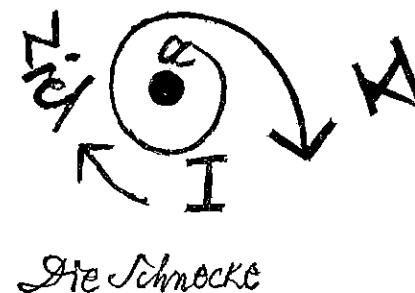


1924/153: *Snail*.
Simultaneously by essence and semblance in three-dimensional interpenetration.

Cf. 'Ways of nature study' (1923), Volume 1, p.63.
'The object grows beyond its appearance through our knowledge of its inner being, through the knowledge that the thing is more than its outward aspect suggests. Man dissects the thing and visualises its inside with the help of plane sections; the character of the object is built up according to the number and kind of sections that are needed. This is visible penetration, to some extent that of a simple knife, to some extent helped by finer instruments which make the material structure or material function clear to us.'

On the subject of the snail, Klee made this note:
'From the need for shelter, combined with growth, to the house. Analogous to the apple; from flower to fruit shell. Essence of apple, of snail shell, of man's habitation.' 8/11.

Snail, goal.



Klee's natural history collection included sea and snail shells, some of which he had brought back from his trips to the Baltic and the Mediterranean. In the twenties he filled a portfolio with pictures and photographs of curious forms and shapes of the kind often published as 'wonders of nature'. A major part of this collection consisted of pictures, cross sections and x rays of molluscs.

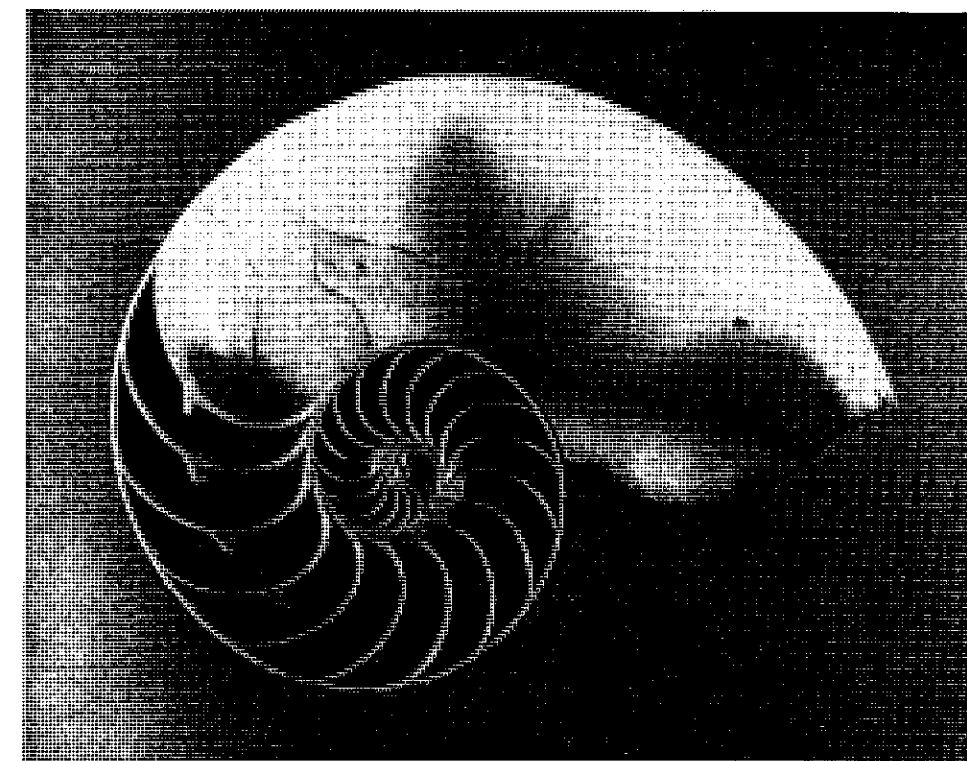
The picture at the right, for example, shows a cross-section through the shell of a chambered nautilus, the only living representative of an archaic genus of squids.

Cf. p.24 of the introduction to Volume 1.

¹Cuts: Here meant to describe interior sections, or places where the outer shell layers had been ground away to show the structure. Applied especially to precious and semi-precious stones, polished to reveal the interior structure.

**Structure and individual contrasted
Resonance-relation to the original force**

Tuesday, 20 November 1923



Structural inventions by students, as theoretical exercises.

Afternoon: Snail shells after nature, with the use of cuts¹ as guides to the interior.
The snail: From the need for shelter, combined with growth, to the house.



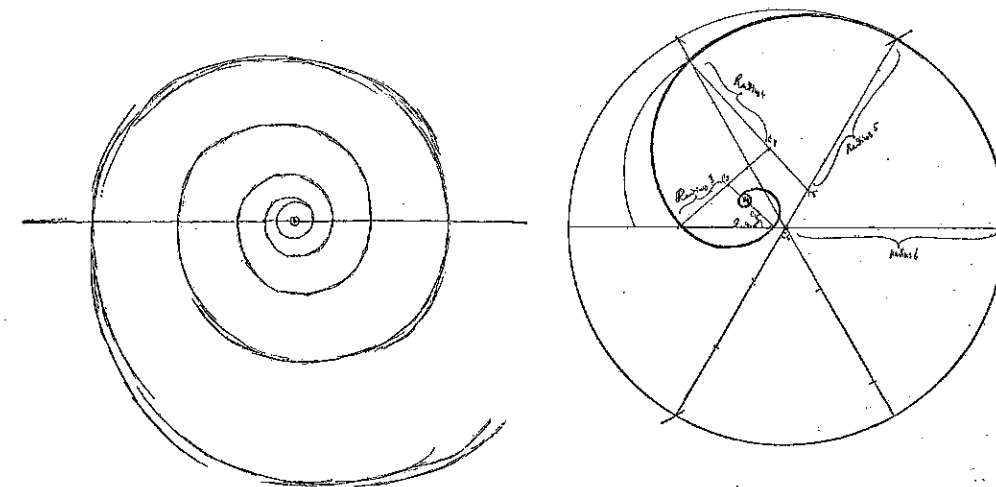
1933/Y: *King of the sea snails.*
Watercolour and oil on muslin on wood, 28 x 43.

Irregular spiral, composed of
normal circumferential segments of
abruptly changing radius.
The radius changes as follows:¹

¹ Note in appendix.

Radial movement (progression),
per rotation 1 2 4 8 16 32 64
17/87a.

Irregular spiral, composed of
normal circumferential segments of
abruptly changing radius. 17/85



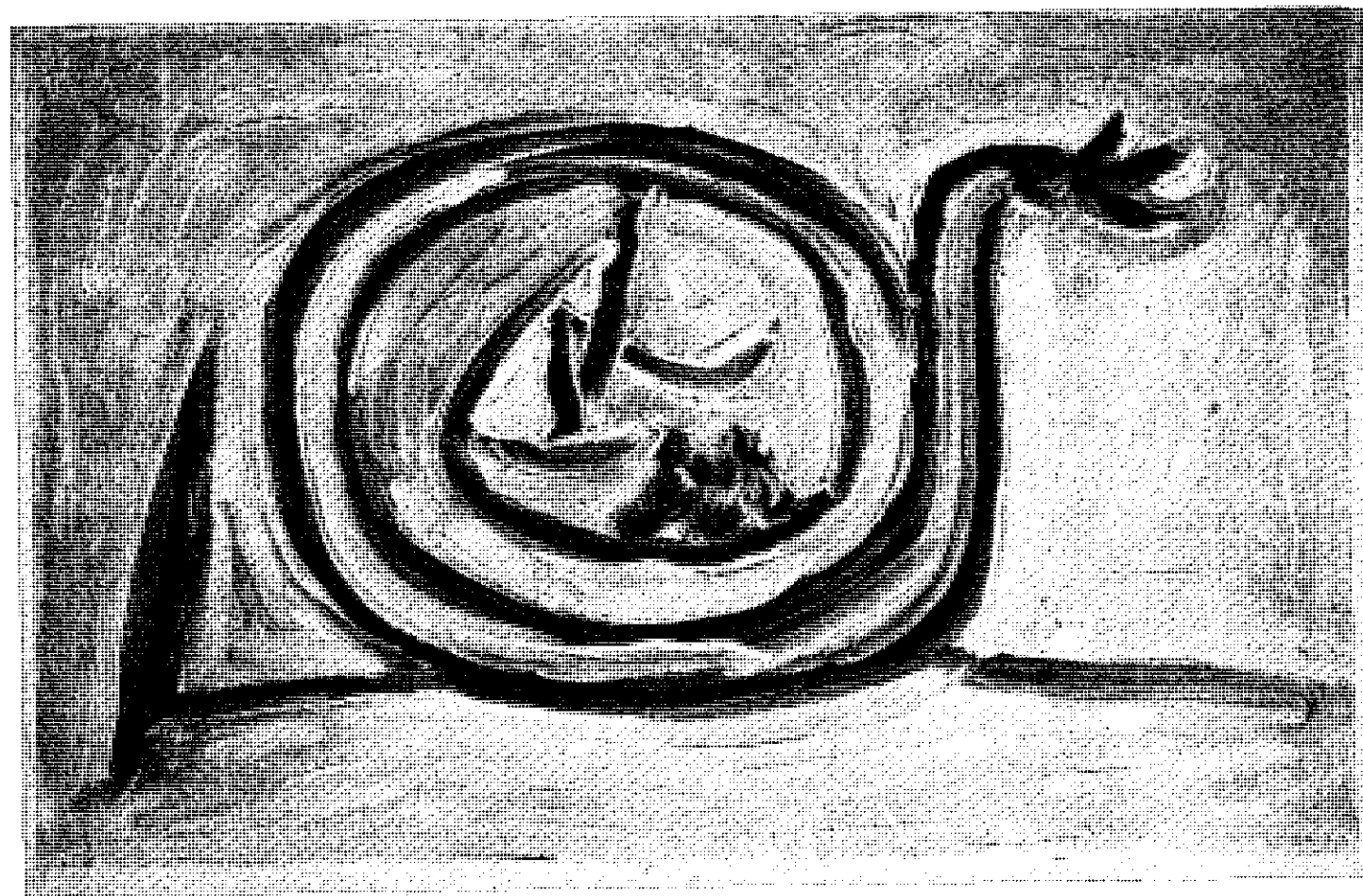
Radius 6 measures 6 units
Radius 5 measures $\frac{5}{6}$ of radius 6, i.e. 5 units

$$\text{Radius 4 measures } \frac{4}{6} \text{ of radius 5} = \frac{5 \times 4}{6} = \frac{5 \times 2}{3} = \frac{10}{3} = 3.333$$

$$\text{Radius 3 measures } \frac{3}{6} = \frac{1}{2} \text{ of radius 4} = \frac{5 \times 2}{3 \times 2} = \frac{10}{6} = 1.666$$

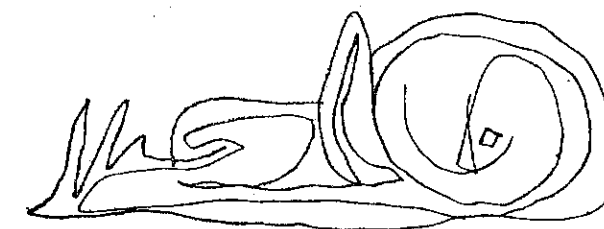
$$\text{Radius 2 measures } \frac{2}{6} = \frac{1}{3} \text{ of radius 3} = \frac{5 \times 2}{3 \times 2 \times 3} = \frac{10}{18} = \frac{5}{9} = 0.555$$

$$\text{Radius 1 measures } \frac{1}{6} \text{ of radius 2} = \frac{5 \times 2}{3 \times 2 \times 3 \times 6} = \frac{5}{54} = 0.092$$

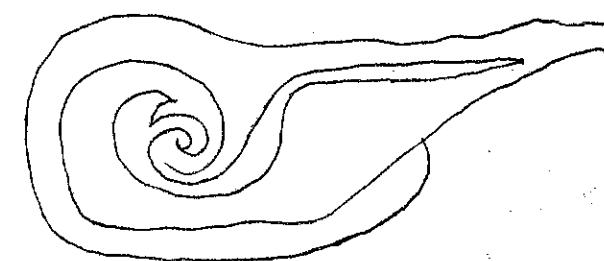


1937/L 19: *Snail post.*
Oil and zinc-white on paper, 17.9 x 27.9.

Study from the Theory of form and figuration, 9/61.



Detail from a pencil drawing from the year 1938.



We have noted the contrast of structure and individual in the theory of proportion. In the structural sphere we have gone through an exercise from which nothing has emerged that is false, true enough, but neither has it given rise to anything particularly lively. Rather what has come out has been on the rigid ornamental side.

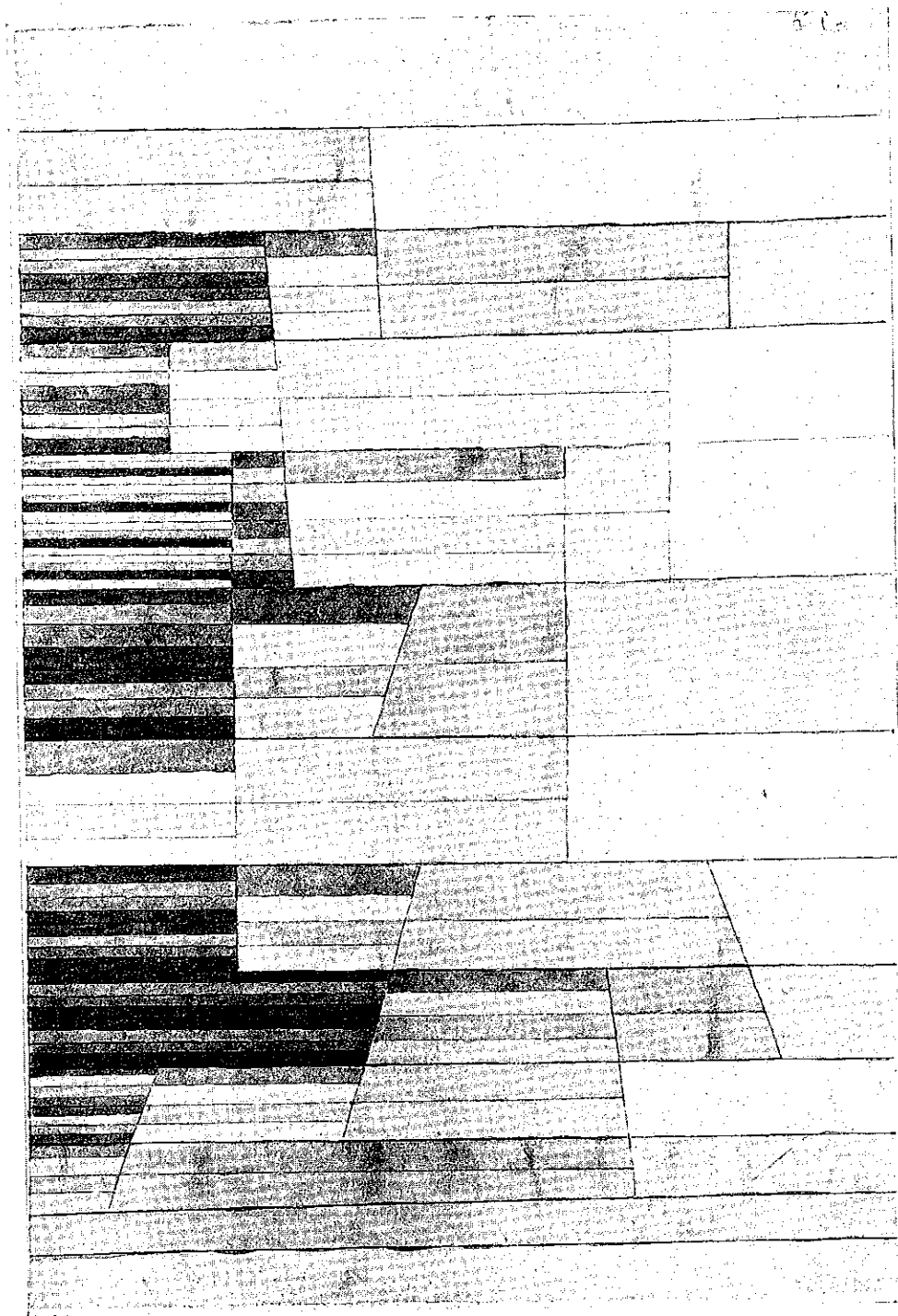
Clear-cut articulation and distinction between opposites are of considerable importance, since learning and ordering have the same meaning, so to speak.

It is the energy-charged creative force that forms the basic life content, and this we must not stint. So the meaning of rigidity remains in doubt. This force stands revealed in its functions, it derives its living form by permeating matter. It invests matter with life, sets it in motion by a definite order, by definite rhythms (sound figures).

The particles are placed in resonant relation with the primal force. Thus they have no choice but to arrange themselves in the same way as sand forms into sound figures, when its supporting platform is oscillated. The fiddler's bow causing such oscillations has been lacking in much of your work. Something did come out of it, but there was no real reason why it should have. No genesis. This is the real nature of rigidity – the non-functioning of growth: The result is detached from its premises. Form as such.

You might call it dead form – form that no longer functions, that no amount of fertilisation can make function again.¹

¹ Final paragraph crossed out in the manuscript.



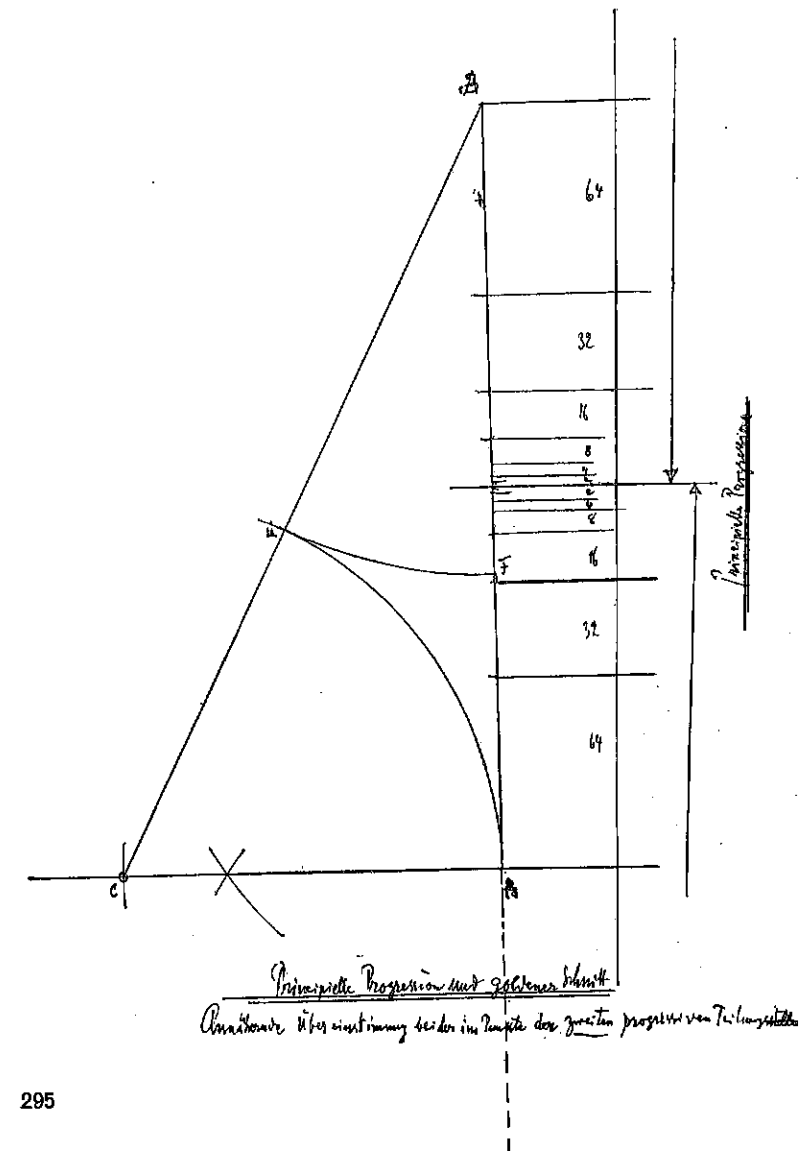
1929/m 10.
Monument at the edge of the fruit land.
Watercolour. 45.8 x 30.7.

Basic progression and
golden section. IV/119

Basic progression

Approximate coincidence of
both at the point of the
second progressive division.

Construction of the golden section
Basic progression and golden section
Golden section: absolute symmetry and relative symmetry
Golden section: Circles



- A Absolute symmetry or basic harmony or direct even division in psychological representation related to lines and loci.
- B Relative symmetry or special harmony in psychological representation as 'golden section measuring movements related to the centre'.

Golden section. IV/116

Theory of proportion. IV/118

As regards the golden section:
Approximation
to the basic progression.

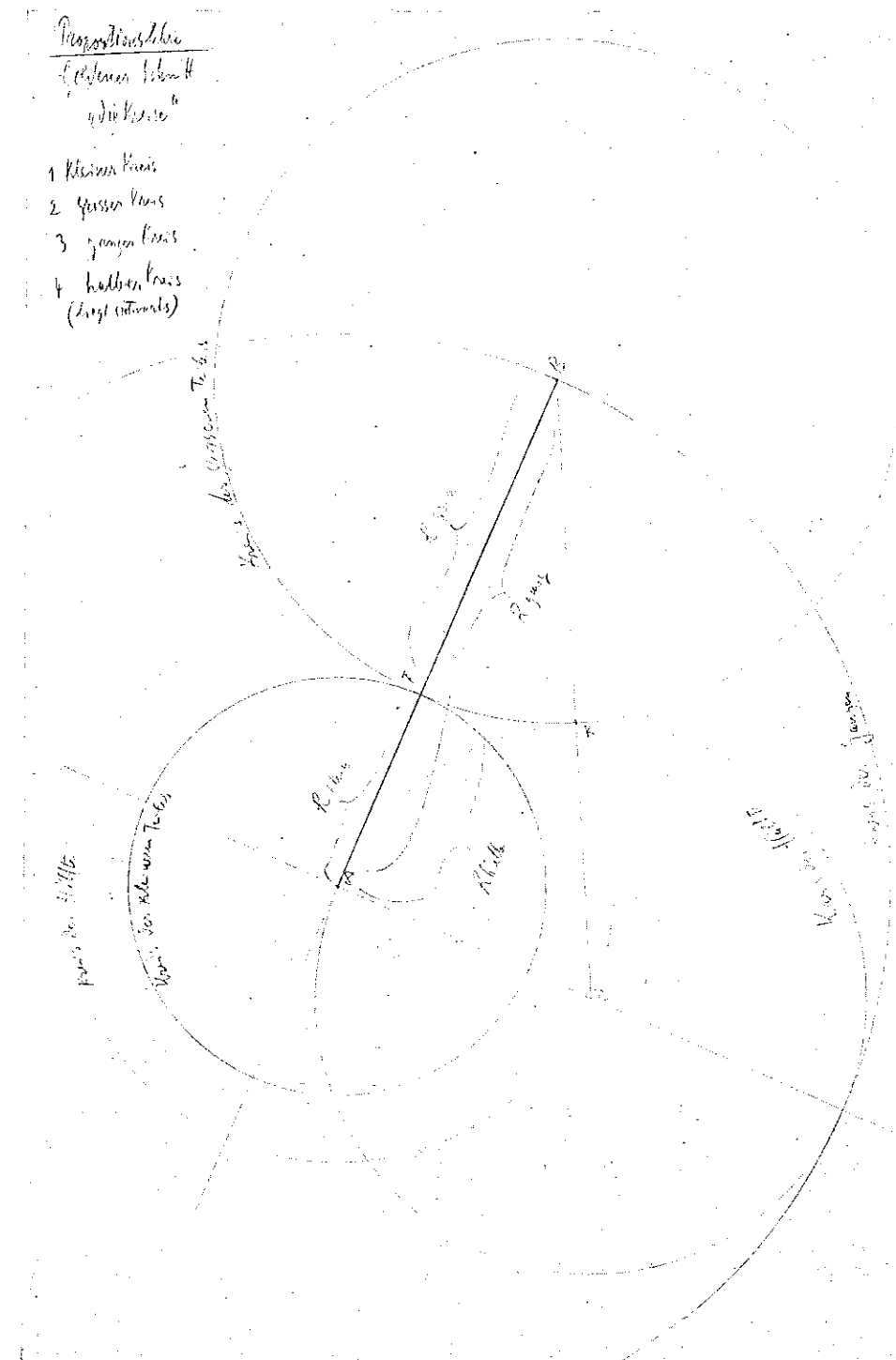
Numerical example:
 $7.5 : 12.5 = 12.5 : 20$
 $12.5 \times 12.5 = 7.5 \times 20$
 $156.25 = 150$ approximately

Another example along the above lines
would be:
 $3.75 : 6.25 = 6.25 : 10$

32
 16
 8 — B
 4
 2
 1 — A
 1
 2
 4
 8
 16
 32

Golden section: 'circles'

- 1 Small circle
- 2 Large circles
- 3 Whole circle
- 4 Semicircle (lying sideways)



Note in appendix.



1934/N 10: *Groups, old and young*.
Pencil. 48.5 x 62.3.

The pictorial means

¹ Cf. the chapter 'From point to line, the line as element, linear and planar character', Volume 1, pp.103-118; and 'The order and nature of pure colours. Topology of colour relations', Volume 1, pp.465-511.

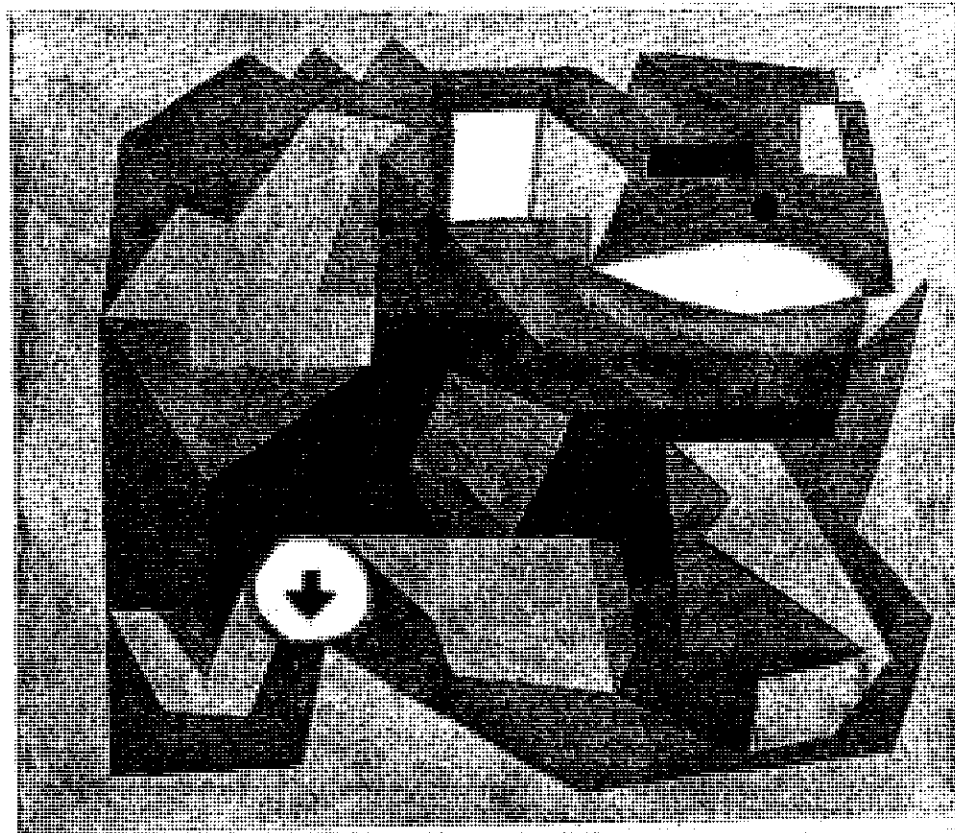
Line

The pictorial means: line, tonality, colour
Line as pure abstraction
The range from light to dark
Black and white as opposing active principles
Aggressive and defensive energy
Grey as balancing ground
Tonal scales
Movement between black and white poles

Line
Tonality
Colour¹

Let us take a relatively simple unit – say, a grey patch. It has only two parameters. Its density can be estimated and its circumference can be measured. A hair-line, on the other hand, can only be measured. The question of its density scarcely arises.

We already know some things about lines, because we have used them more than anything else. Hence I shall be brief, even though I am personally tempted to say quite a bit about this pure abstraction. What intrigues me is precisely the open question of its reality. Realists are quite likely to ask: Is there actually such a thing as a line?



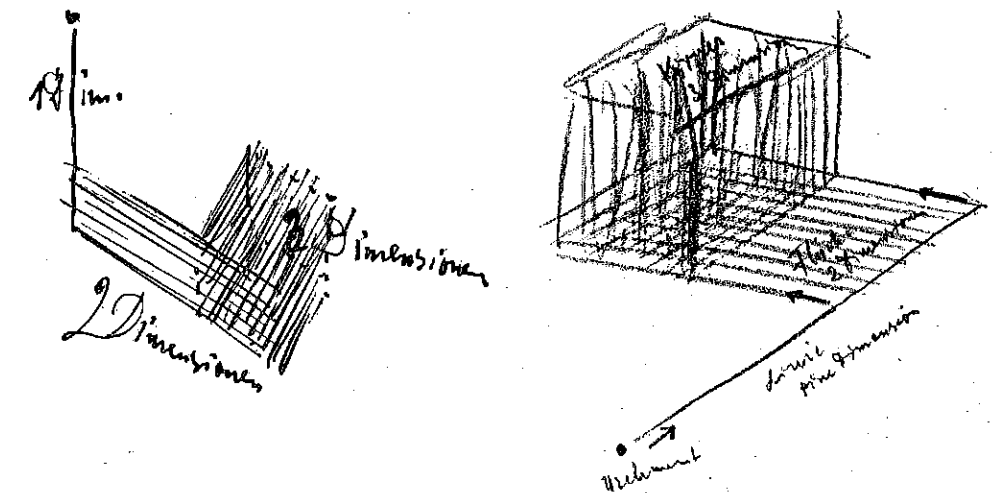
One dimension
Two dimensions

Primal element¹
Line one dimension
Plane two dimensions
Solid three dimensions

¹ 'The point is not dimensionless but an infinitely tiny elemental plane, an agent that carries out no motion; in other words, it is at rest.'
Cf. Causality: the point that sets itself in motion, Volume 1, p.19.

Crossed out in the manuscript: 'Limit, halt'.

Line is but the upshot of two planes! Or a plane at eye level! And line proper, the active moving point, line *par excellence*, is no longer visible! It does not exist!

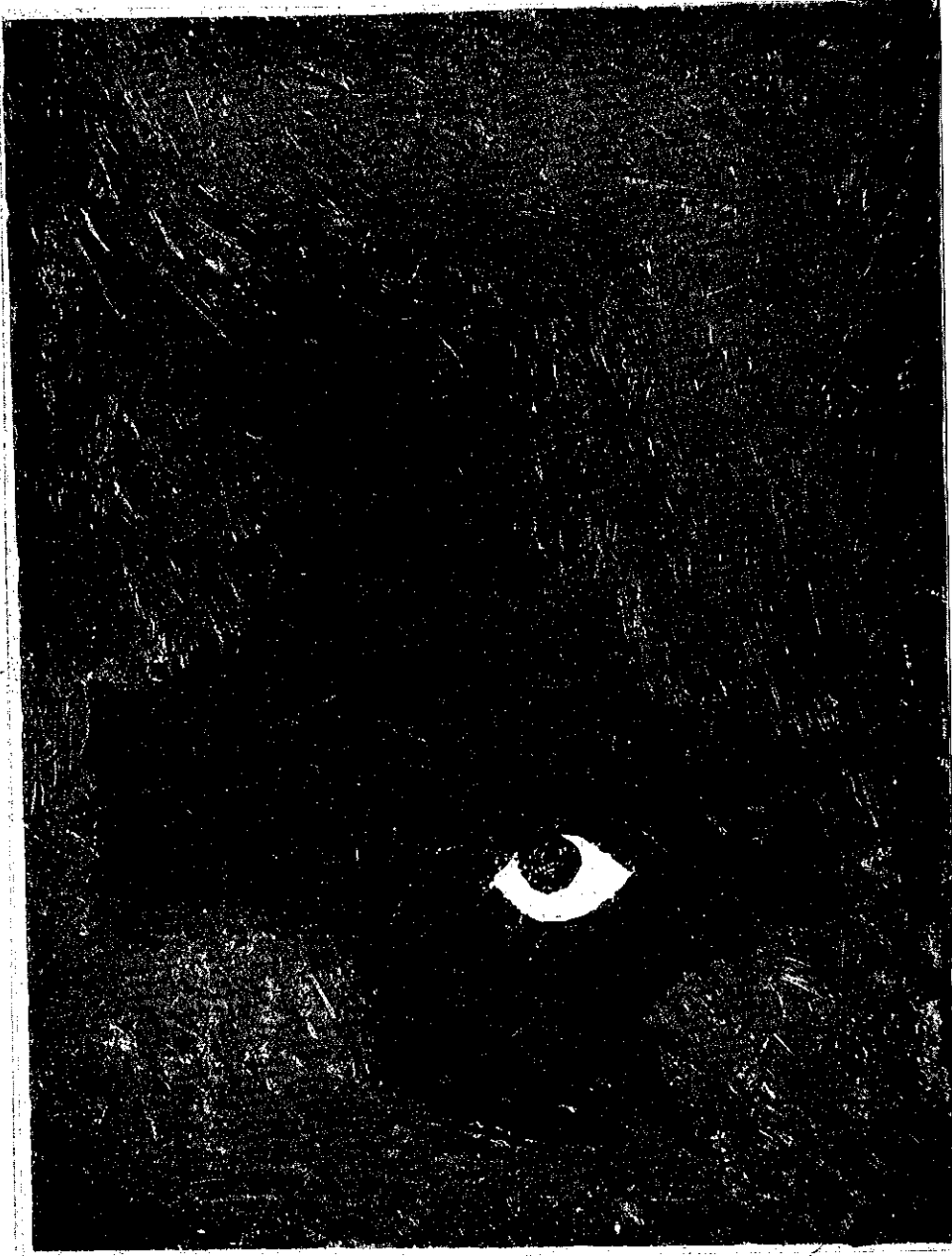


But this makes the idealist smile from the bottom of his heart. Even if I cannot see it, he says, I can sense it, and what I sense I can also perceive, make visible. Thus there is indeed such a thing as a line! It certainly has at least relative existence, i.e. in comparison to other kinds, e.g. in contrast to the plane.

It's like this: If we shoot off a long thin arrow or a tiny bullet at a black spot from a distance, what we do is to bring a line in relation to the spot.

And when we tether a great balloon with a long rope, is it any different? Or when we connect an exchange with substations by means of wires?

There certainly are lines, as contrasted with planes and solids. And line is many, many other things! Conducted current. Thought.² Pathway. Assault. Sword, stab, arrow, ray. A knife's edge. Scaffolding. And that joiner of all form, the plumbline.



1933/1 2: *Negro glance*.
Coloured paste on newspaper. 49.5 x 37.

1933/1 4: *Deep in the woods*.
Coloured paste on paper. 32 x 42.6.

Tonal range used to lighten or darken within a limited colour range. Avoidance of sharp contrast 'within the neutrality of the twilight middle region'.



Tonality

The range from light to dark moves up and down between the poles of white and black. In nature white can probably claim the advantage in spontaneous activity. All things are enlivened by absorbing appropriate volumes of this luminosity, more or less of it, differentiated in keeping with their light requirements.

The force of light is extremely aggressive in nature. It spares nothing and may here and there be so strong as to cause trouble.

There are, however, certain measures to ward off light, measures armed with defensive energy. The superior activity issuing from the white pole, while valid in nature, must not mislead us into a one-sided view. Here too struggle is inevitable, for of itself white is nothing. It becomes a force only in its effects stemming from contrast. Actually, we do not merely meet the given dark with bright energy, but the given light with dark energy as well.

It depends on the substrate, and since this is quite often white – a sheet of white paper or a white wall – it is black that we work with on a white substrate. Something happens that involves black. We work with black.

If, on the other hand, the substrate is black – as in the case of a blackboard or a slate – our 'natural' medium becomes white.

If, lastly, the ground is a neutral grey, black and white could both be used successfully as media; for the neutral ground is equidistant from both poles and inimical to both.



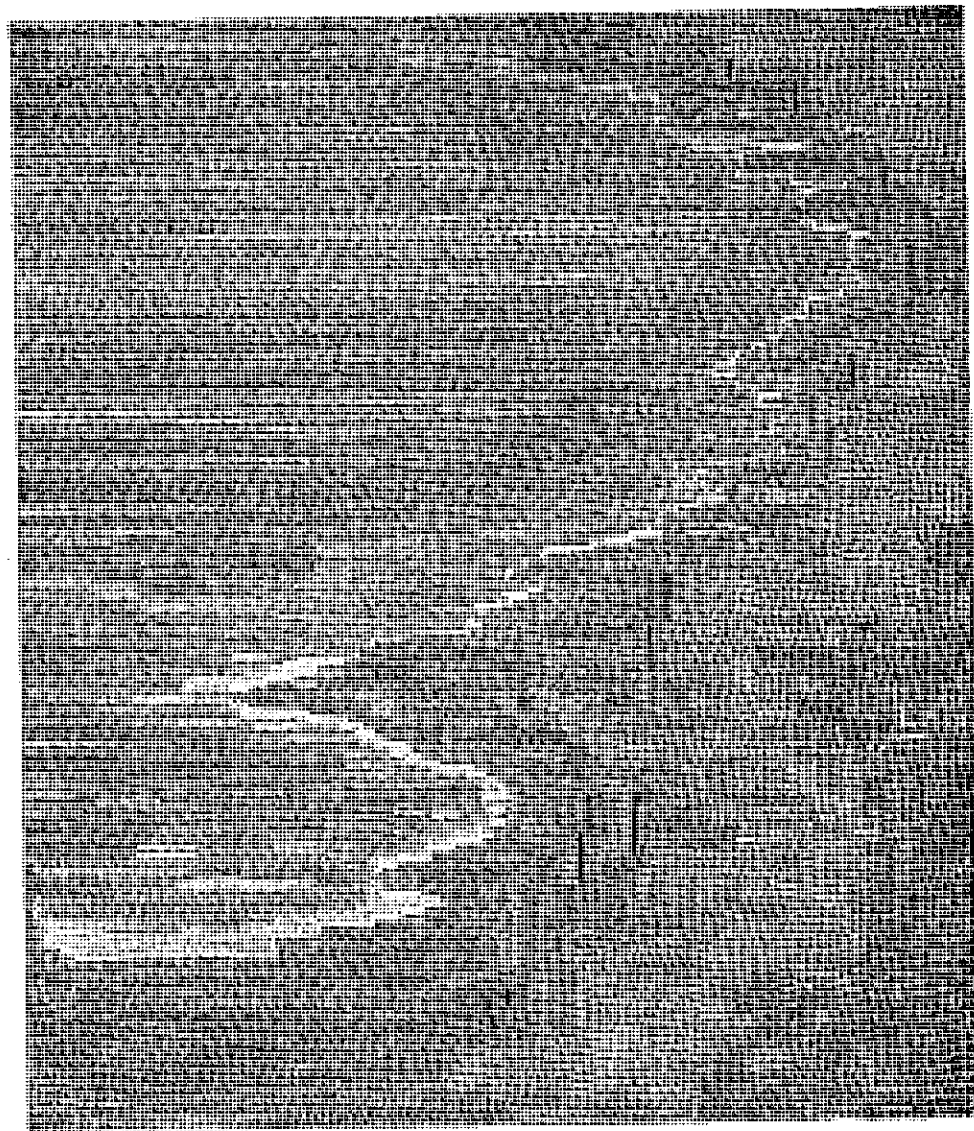
1909/02: *Well-cared-for forest path, Waldegg near Berne.*
India ink. 17.5 × 25.9.

The given white constitutes light *per se*. Initially, nothing disputes its sway, and the whole is devoid of movement, without a trace of life. It now becomes a matter of bringing black upon the scene and throwing down the gage of battle. The inchoate preponderance of light must be challenged.

We are struck equally by the non-descript impotence of a black surface. It is unmarred by light of any intensity, strong or weak. In such a case, we naturally ally ourselves with white and avail ourselves of its brand of energy.



1909/42: *Deciduous Forest, Eggholz near Berne.*
Pen-and-ink. 26.5 × 15.



1931/y 5: *Classic coast*.
Oil on canvas. 81 x 69.

Medium grey describes the situation of an outright stalemate in a black-and-white contest. It is as deadly to figuration as are pure black and pure white. Hence what must be marshalled in such a case is a dynamic exercise that heaves to and fro, and in the process we must help ourselves vigorously from both poles. Aggressive and defensive forces therefore come into play for us, in turn or side by side. We cannot escape the challenge of a vital issue somewhere between the two poles. To this end we must have at our disposal the whole scale of gradations, from top to bottom.

Unintermittent central
figuration 60/46a

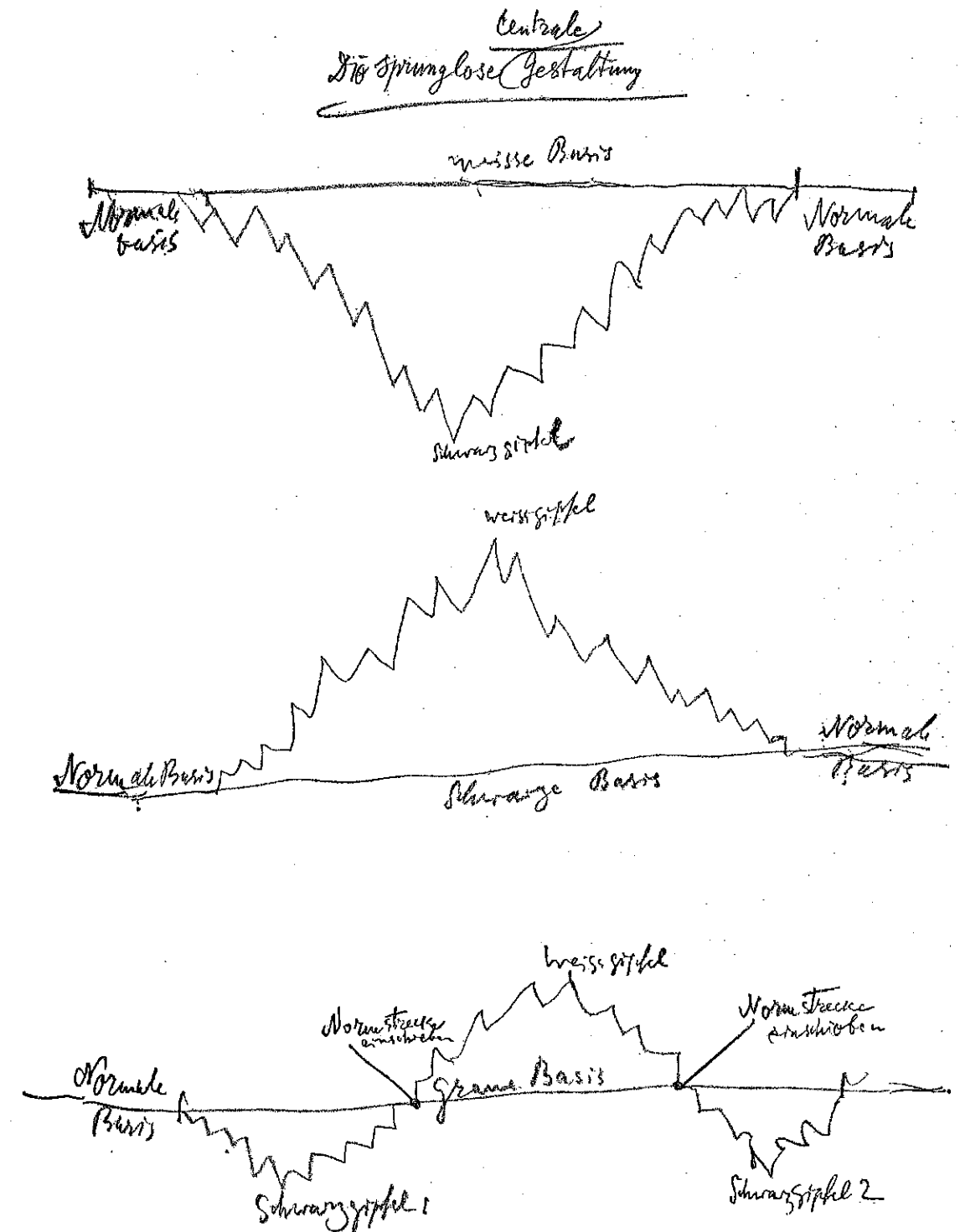
White basis
Normal basis
Normal basis

Black peak
White peak

Normal basis
Normal basis
Black basis

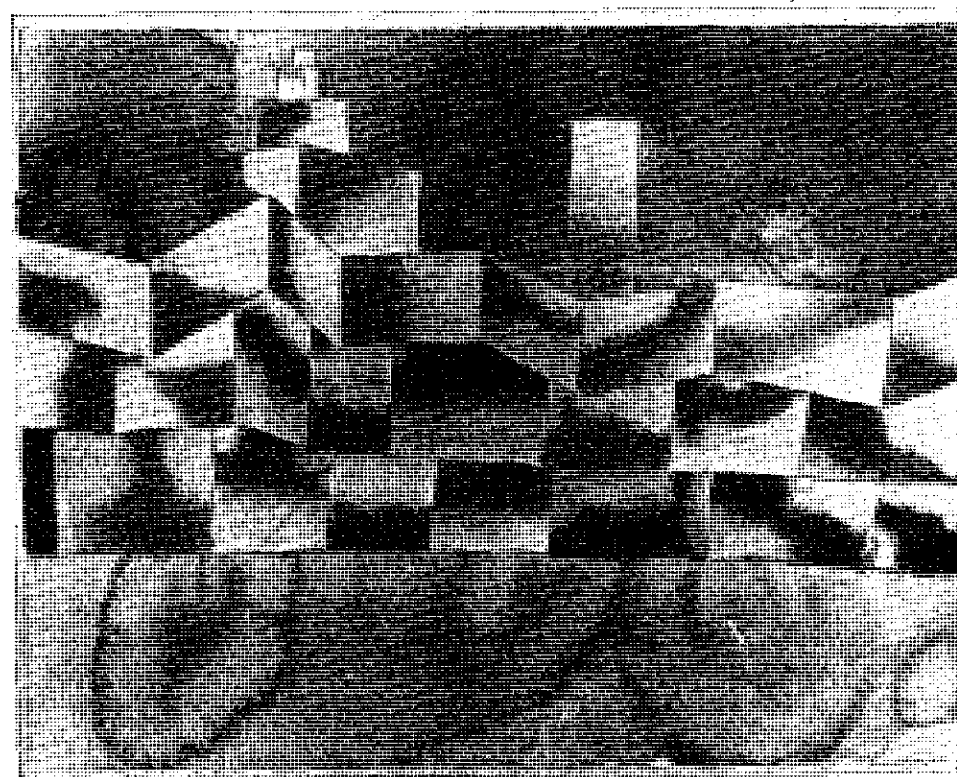
White peak
Normal basis
Interpose normal distance
Grey basis
Interpose normal distance

Black peak 1
Black peak 2



The first thing to concern us is the great wealth of tonal values between the two poles. Ascending from the abyss to the source of light, we are assailed by a sense of the unmatched grandeur and breadth of enhancement from pole to pole. A darksome subterranean rumbling below, a shadowy blurring in the middle, as though we were under water, and the hissing edge of superlight above. The impact of such a progression is memorable; and when indeed we speed the upward and downward movement in time, the resulting impressions can be compared only with the swell and ebb of a raging storm. In such a rise and fall, who could be mindful of individual tones, except for the glaringly discrepant poles?

Tonal scales



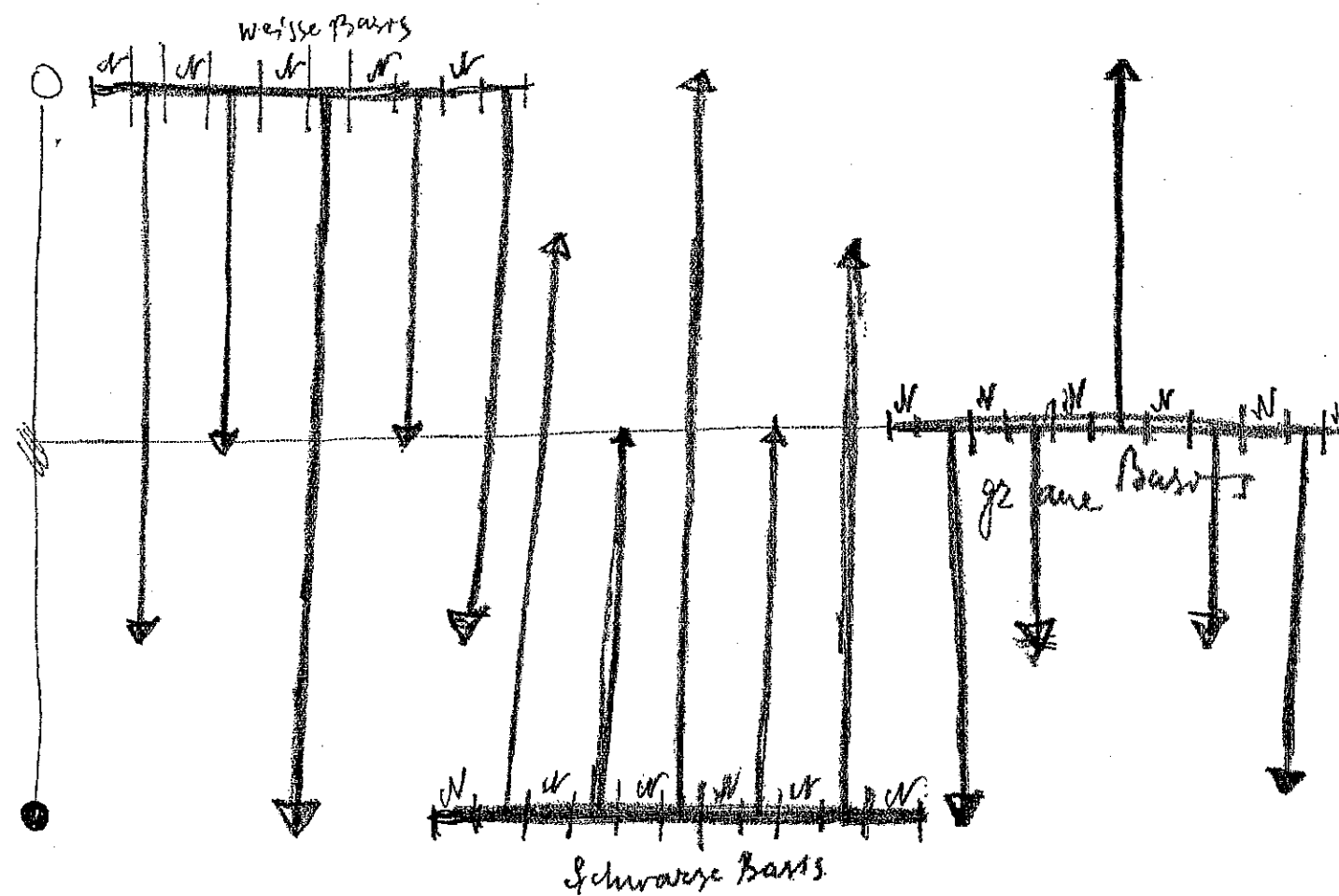
1929/2: Architecture in the east.
Watercolour. 24.3 x 31.3.

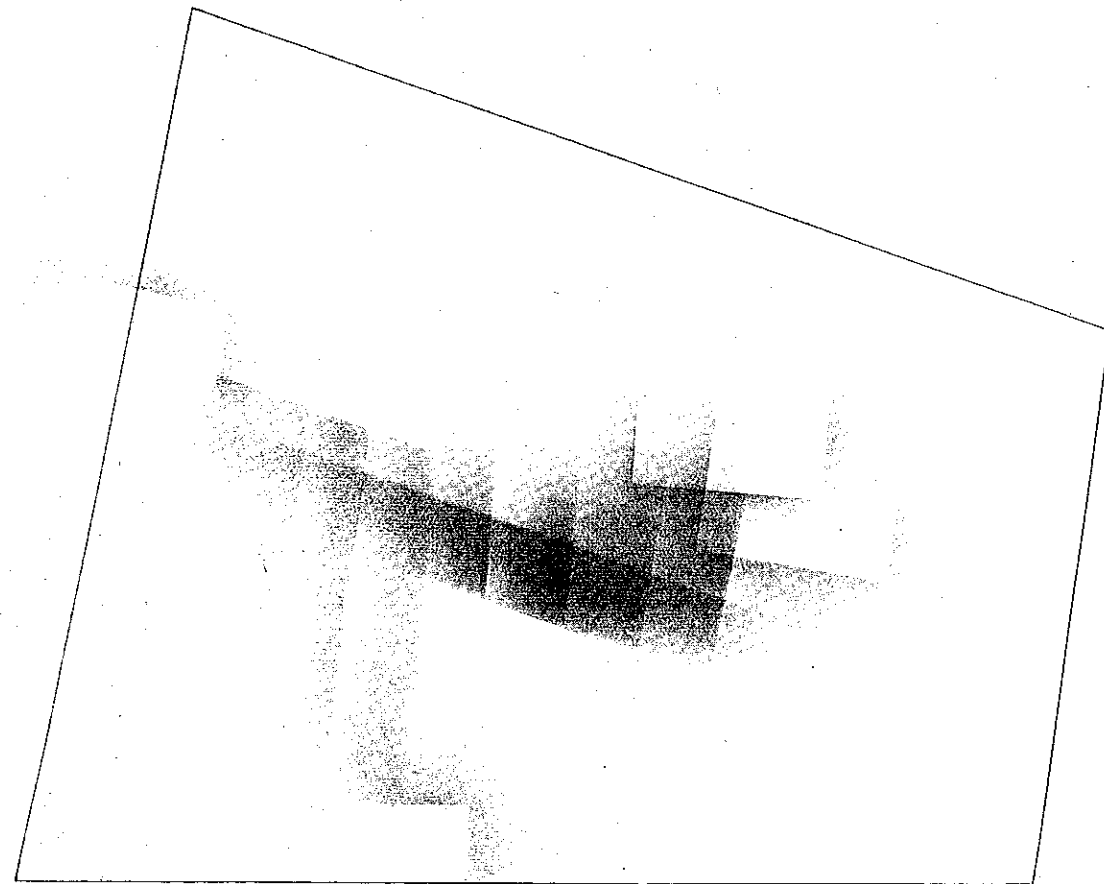
Figuration example with normal basis: white, grey, black.
Movement and counter-movement. 60/47.

With continuous repetition of this contrasting to and fro movement, we may slow down the pace and become more aware, *en route*, of the twilight middle. To gain a better taste of this neutral zone, we may in time cease to extend our vertical rambles all the way to the awesome poles. As our swings approach the normal, they are likely to focus on the uncertainly lit middle region; and in time we shall come to a first tentative halt, here, about the middle.

N=normal

White basis
Grey basis
Black basis





1930/AE 2: *Prospect*.
Air brush, pen-and-ink and coloured crayon.
42.1 x 52.1.

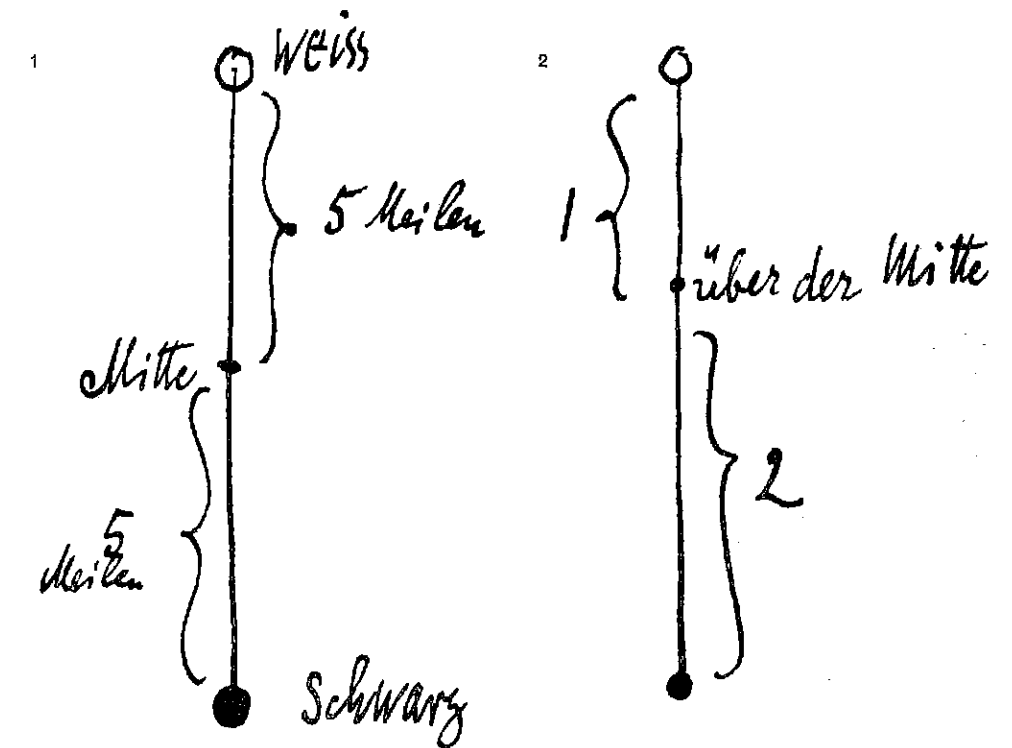
White

5 miles
above the middle

Middle

5 miles

Black



Pricking our ears upwards, we hear the white hiss in the distance, which we estimate at five miles. Harkening down below, we perceive a muffled thundering in the depths, the distance of which we also put at five miles. [1]

Next other points pique our curiosity. We move up a bit, to assess the new effect. At this new point above the middle the sound of white has grown much louder, while black has slipped back to half-strength, a very low sound indeed. This is the point at which the effect of white is doubled while that of black is halved. [2]

The distances are in inverse proportion to the effect. When the distances from white and black are as 1:2, the effects of white and black are as 2:1. There are a great many points along the entire length, and it would be infinitely laborious to examine each of them as to the degree to which they are influenced by white and black. Even if that were possible, our sole gain would be a contradiction. We should be calculating something that works only in swift movement; and calculations would thus be impracticable.

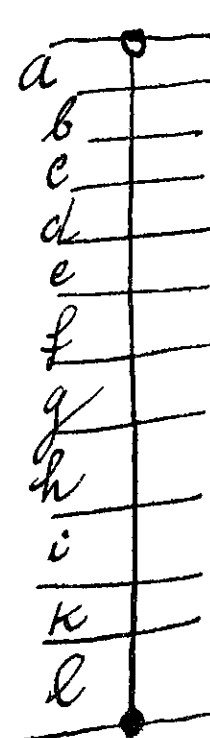
Examples of form-creation:

[1] Movement between black and white along a twelve-point scale. A classroom exercise which Klee added to his own work in Portfolio 46/1-30.

[2] Black-and-white scale with mixture proportions. 9/53 a.

White	
10 W	
9 W	1 B
8 W	2 B
7 W	3 B
6 W	4 B
5 W	5 B
	grey
4 W	6 B
3 W	7 B
2 W	8 B
1 W	9 B
0 W	10 B
Black	

The natural unarticulated crescendo or diminuendo must be exchanged for an articulation of the up and down, for a ladder or scale. We thus obtain distinguishable points of special appearance. In so doing, we should keep the points far enough apart, while the tonal intervals should be the same throughout.



12 gradation marks

Then, at mark a)

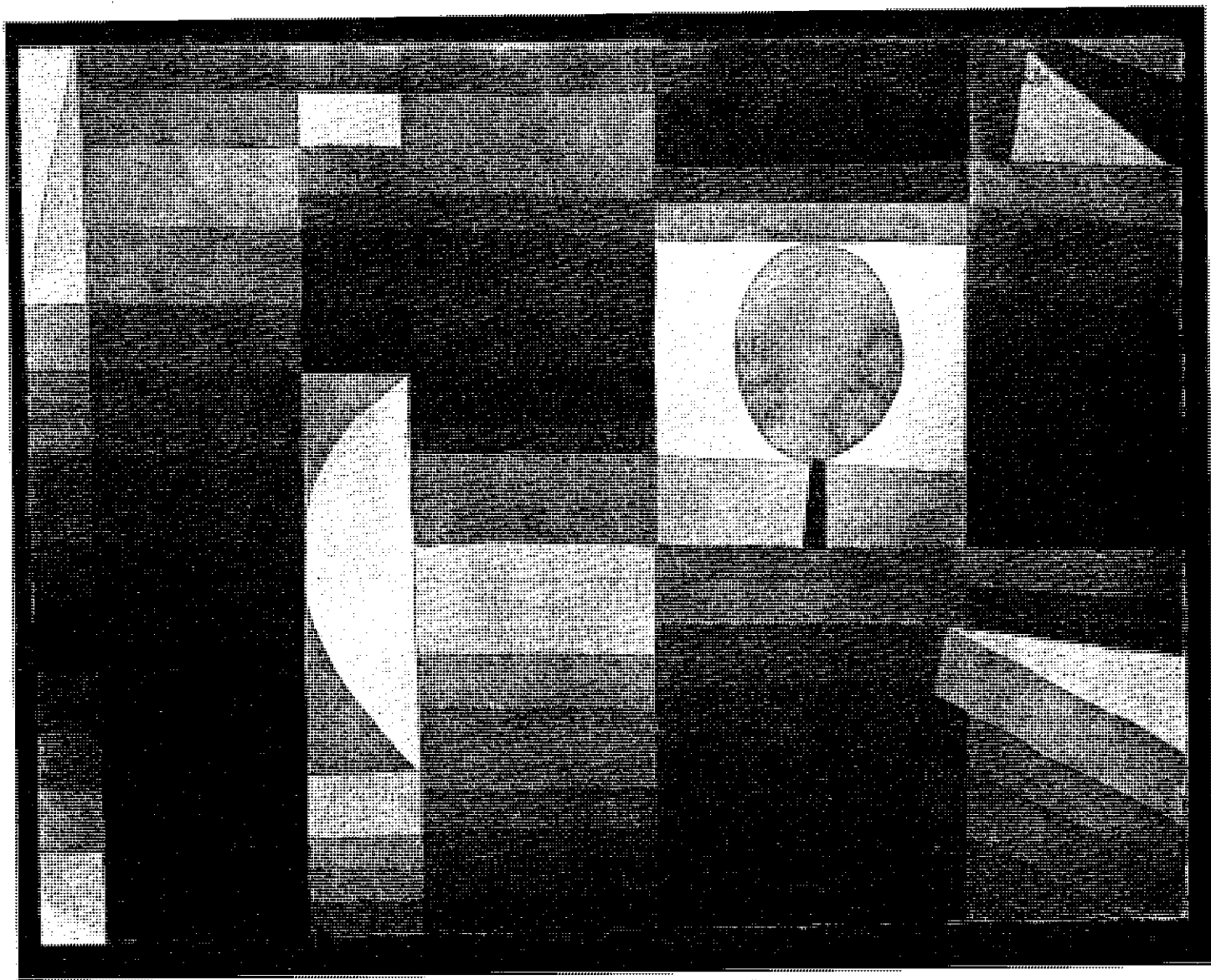
the distance to white = 0
the distance to black = 10
the influence of white = 10
the influence of black = 0
hence the mixing proportion for the tonal value = 10
parts white, no parts black.

At mark d) there would be this numerical picture:

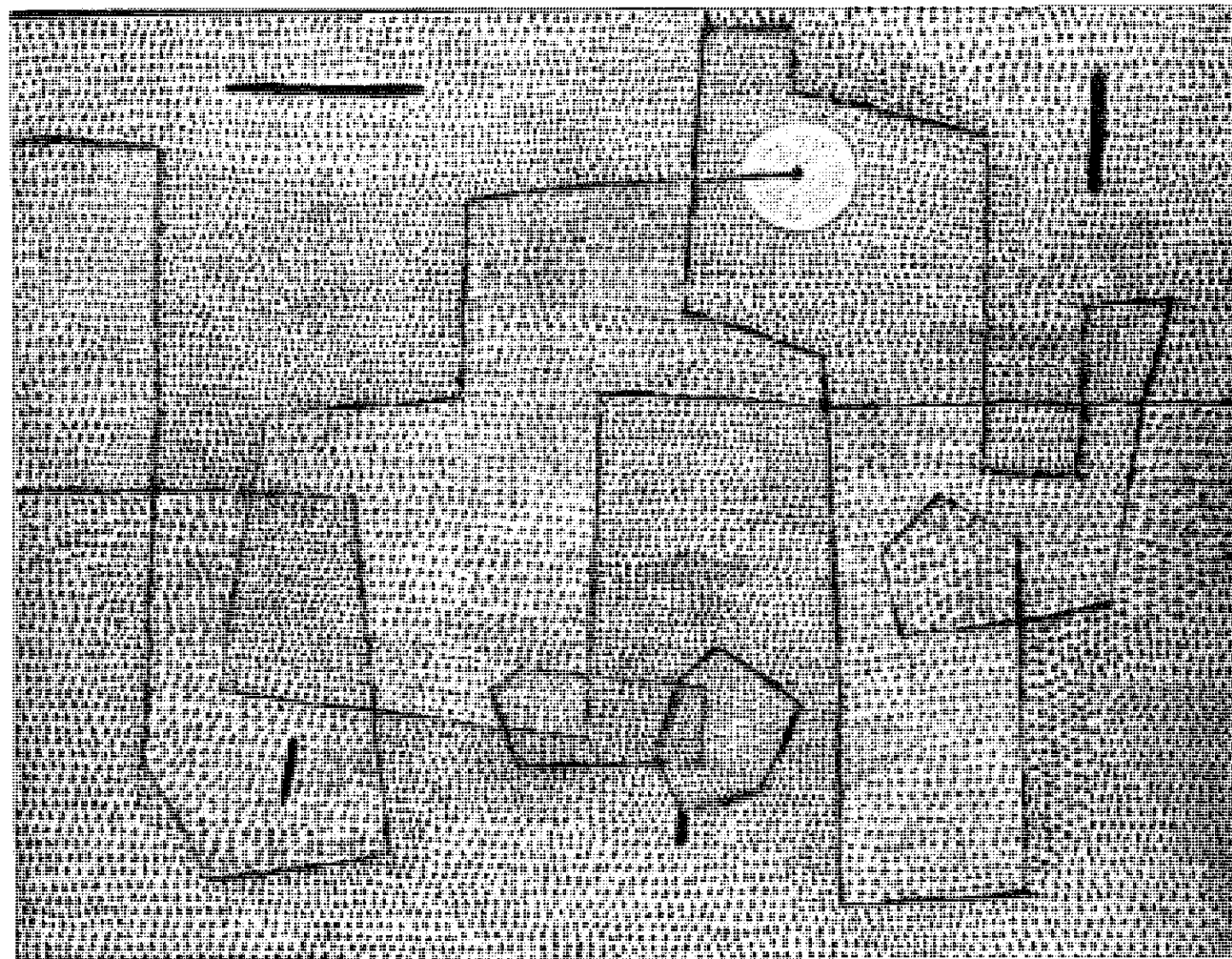
distance to white = 3
influence of white = 7
distance to black = 7
influence of black = 3

hence mix 7 parts white and 3 parts black.

In this way the mixing proportions may be calculated for each gradation, the mixtures prepared in eleven pots and each result painted against its mark, which would result in a very precise picture of a tonal scale (p.317).

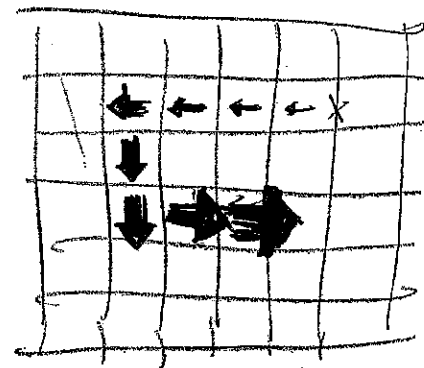


1922/69: *Harbinger of autumn*.
Watercolour. 26.4 x 33.2.



1932/68: *Emacht*.
Oil on cotton. 50.5 x 64.

1	1	1	1	1	1
1	5	4	3	2	1
1	6	1	1	1	1
1	7	8	9	1	1
1	1	1	1	1	1
1	1	1	1	1	1

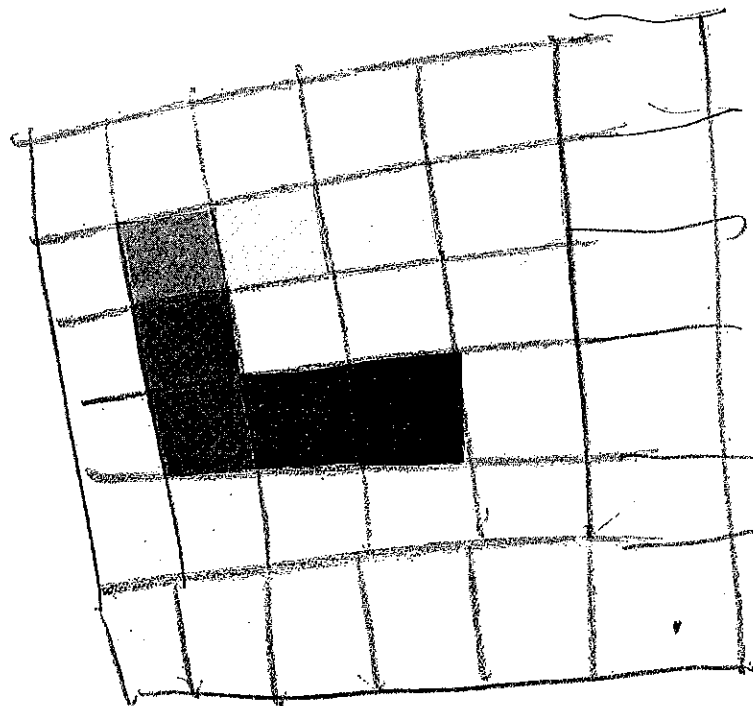


- [1] Representation with figures.
[2] Emphasised direction.
[3] Example done in tonal gradations.

1
Direction of movement and
unequivocal movement.
60/86.

Base 1
Peak 9

1/3 Basis 1
Signel 9



- 1 weiss
- 2 hellst grau
- 3 hellgrau
- 4 übermittel grau
- 5 grau (mittel)
- 6 untermittel grau
- 7 dunkel grau
- 8 dunkelst grau
- 9 schwarz

- 1 white
- 2 lightest grey
- 3 light grey
- 4 grey above middle
- 5 grey (middle)
- 6 grey below middle
- 7 dark grey
- 8 darkest grey
- 9 black

Tonal scale
Blend
Proportions of white
Proportions of black

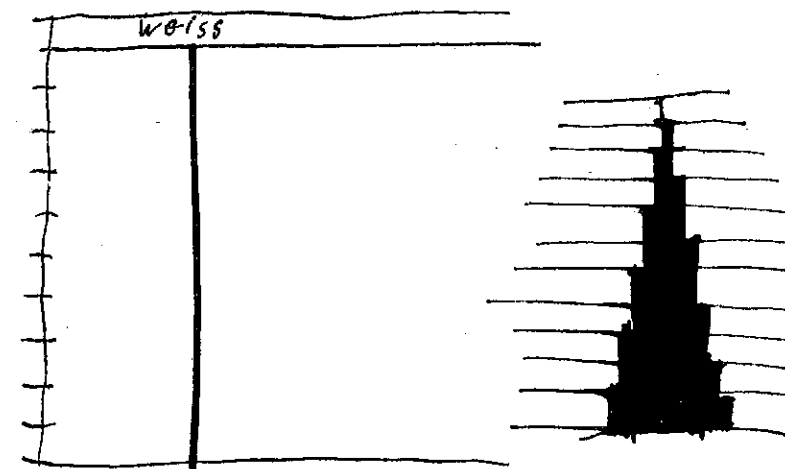
Difference
always
2
always
equal
in size

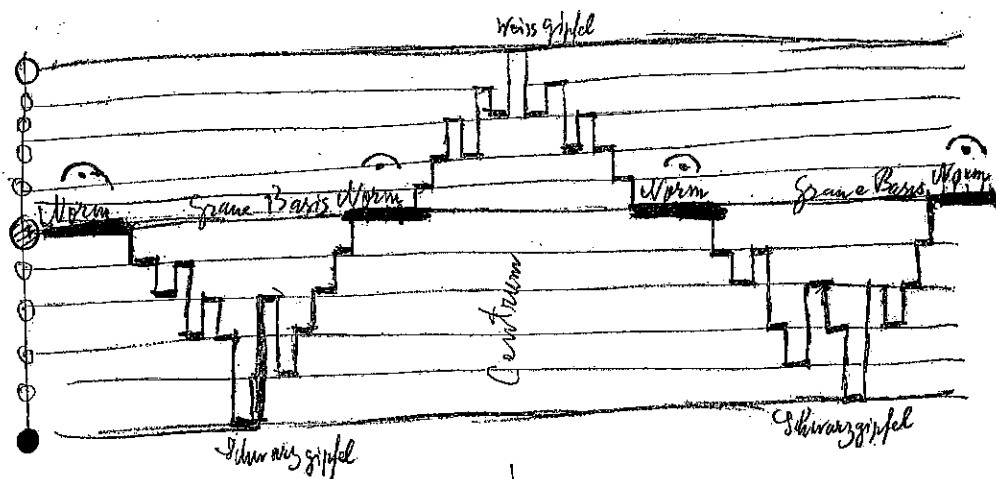
Mischung a	Weiss Teil	Schwarz Teil
a	10	0
b	9	1
c	8	2
d	7	3
e	6	4
f	5	5
g	4	6
h	3	7
i	2	8
k	1	9
l	0	10

+10-0 = 10 Differenz
+9-1 = 8 immer
8-2 = 6
7-3 = 4 2
6-4 = 2 immer
5-5 = 0 gleich
4-6 = -2 gross
3-7 = -4
2-8 = -6
1-9 = -8
0-10 = -10

Another practical method for creating a scale of tonal nuances is the following, which utilises only black, on a given background of white, which it fights with growing intensity, step by step. This requires the application of translucent pigments (glaze), unlike the preceding method, which naturally used opaque pigments.

White, in other words, is ever-present and must be crowded out step by step.





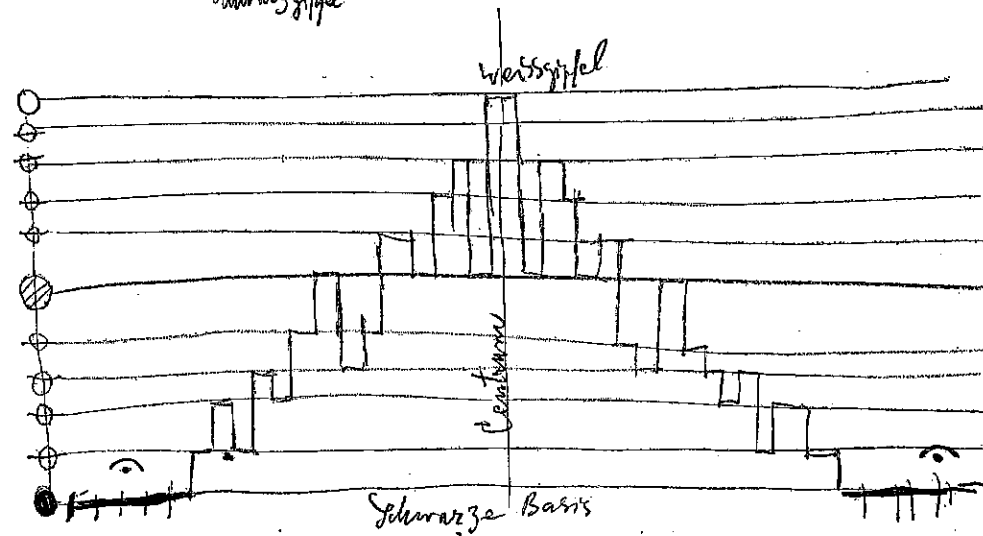
White peak

Normal grey base

Centre

Black peak

White peak



Centre

Black base

Normal white base

Centre

Black peak

Figuration example, p.318: Normal and abnormal on the basis of normal grey and progressively refined gradation. 60/45a.

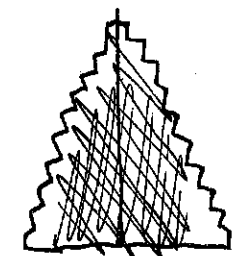
Our pigment is a translucent black in a dilution of 1 to 10. We cover the entire surface with this solution, except the single blackless white stage. When this application has thoroughly dried, we continue the manoeuvre, each time skipping one further stage.

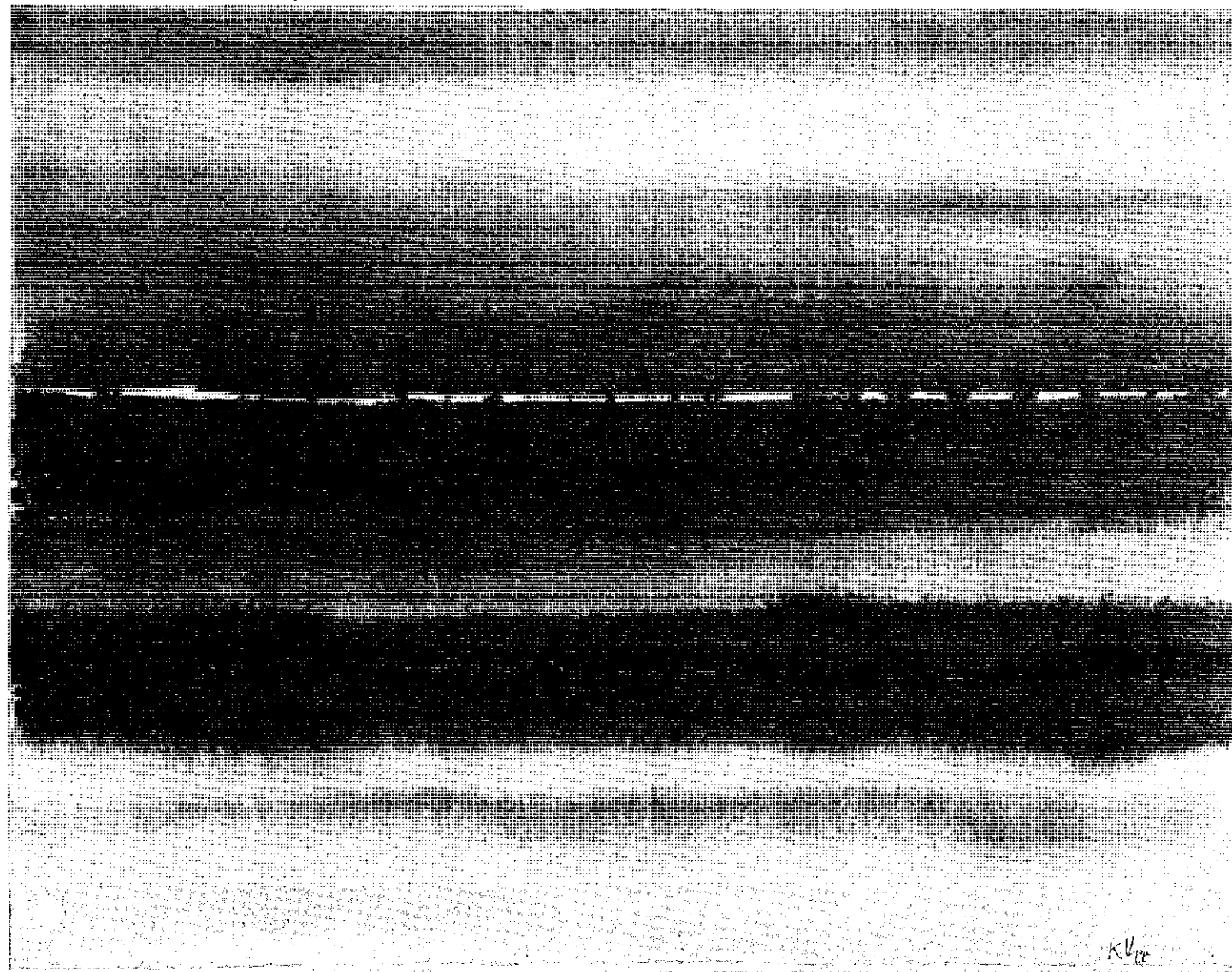
In this fashion we obtain a rising blackout scale. At every stage in this scheme we are able to determine the proportion of black, beginning with zero and proceeding by tenths to ten.

Black content

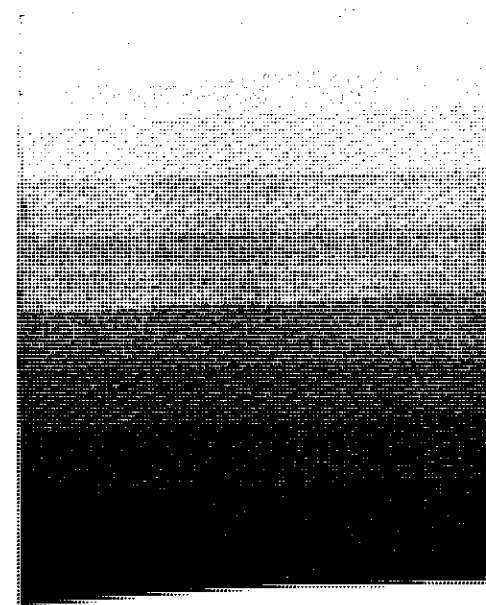


The intensity of black increases from top to bottom until the deepest black has been reached.

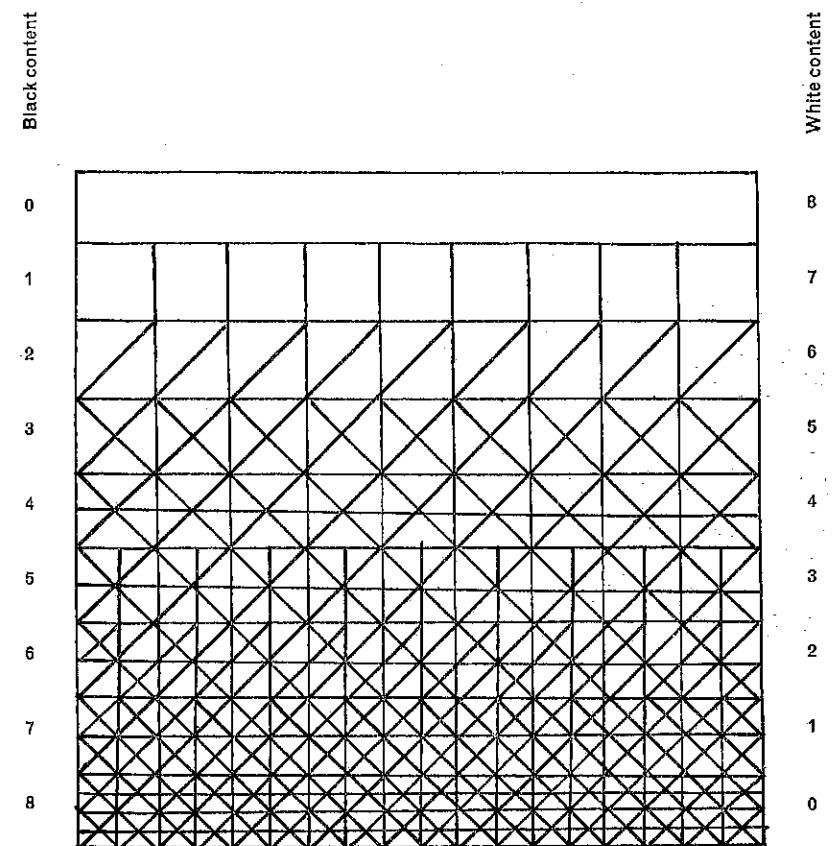




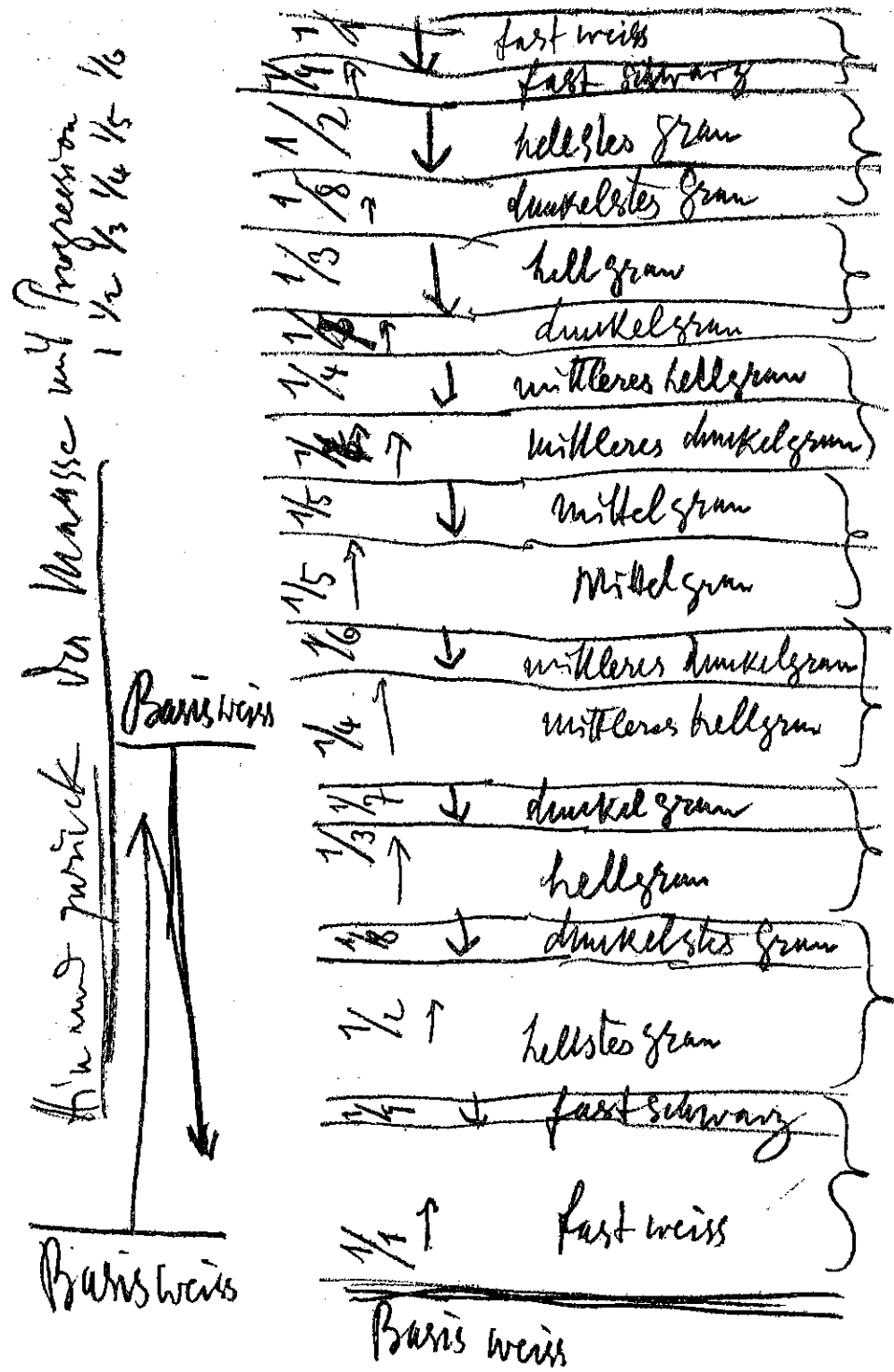
1923/242: *North Sea picture*.
Watercolour, 24.7 x 31.5.



Simple articulated range from black to white in
10 steps (11 dividing lines).
Cf. exercise of 8 January, p.327.



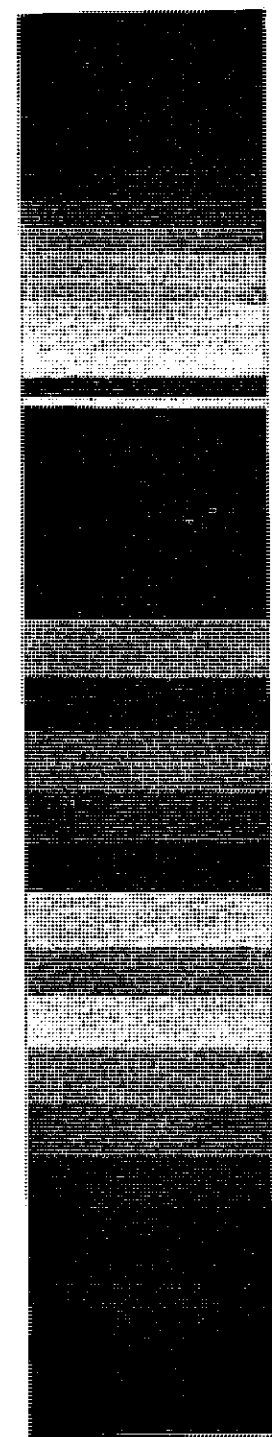
Linear representation of a tonal scale with 9 dividing lines
and step-by-step indication of the content of black
and white.
An example from one of Klee's lessons.



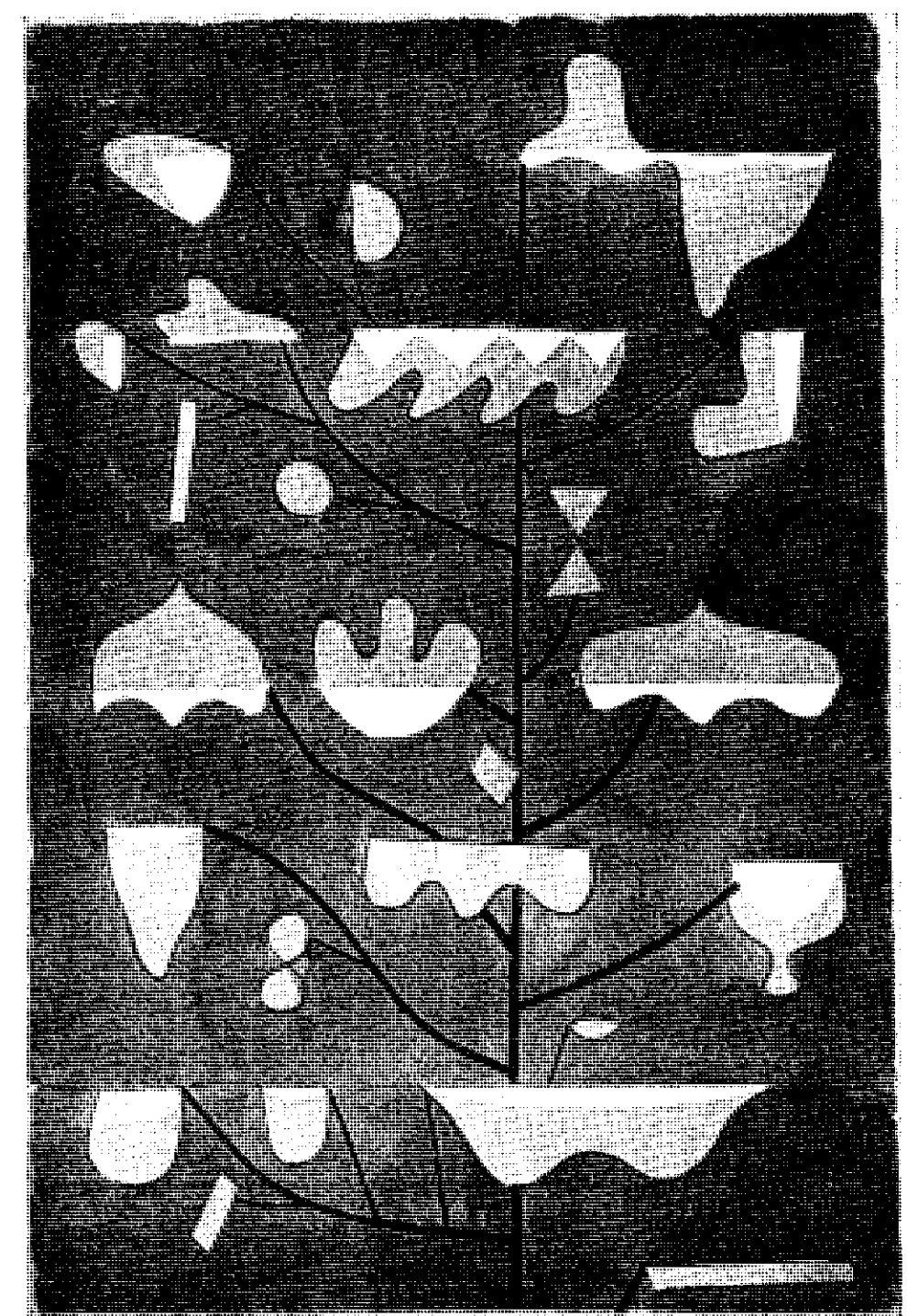
Scale representation, p.323:
 Articulated movement on a black base with
 differential movement in the tonal area.
 An example from one of Klee's lessons.
 Cf. Standing, gliding, striding, leaping in tonal
 representation, p.349, and Transition from leaping
 to striding and gliding 60/13, p.351.

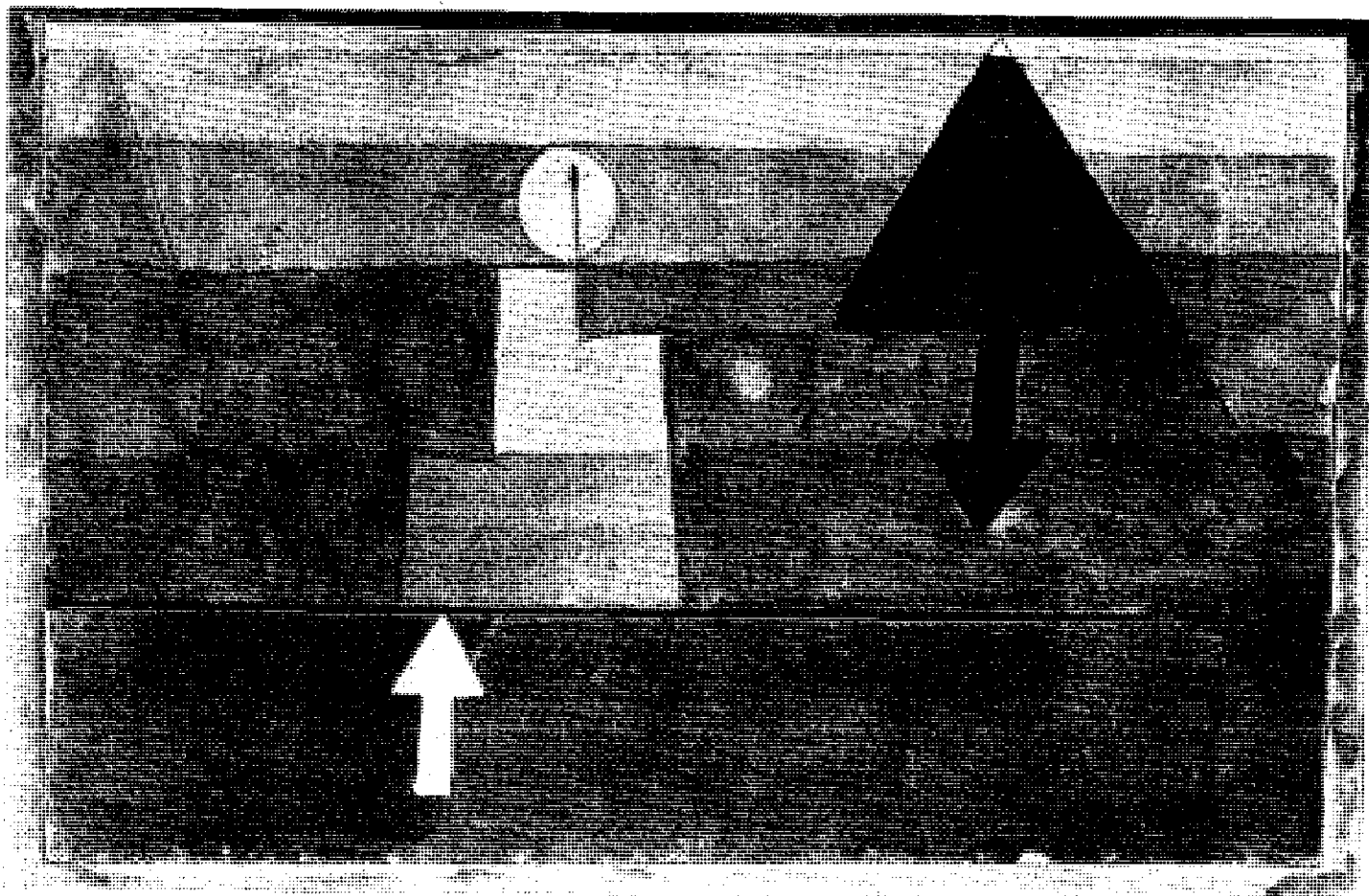
Form-giving example 42/44.

Strips
 Base
 White
 To and fro of dimensions
 with progression:
 1 1/2 1/3 1/4 1/5 1/6



1932/v 13:
 What odd things
 grow.
 Black-and-white
 watercolour.
 48 x 31.5.





1924/25: *Contrasts at night*.
Watercolour and gouache. 23 x 38.5.

Strips

Concentration towards black
Reversal

Concentration towards white¹

White base

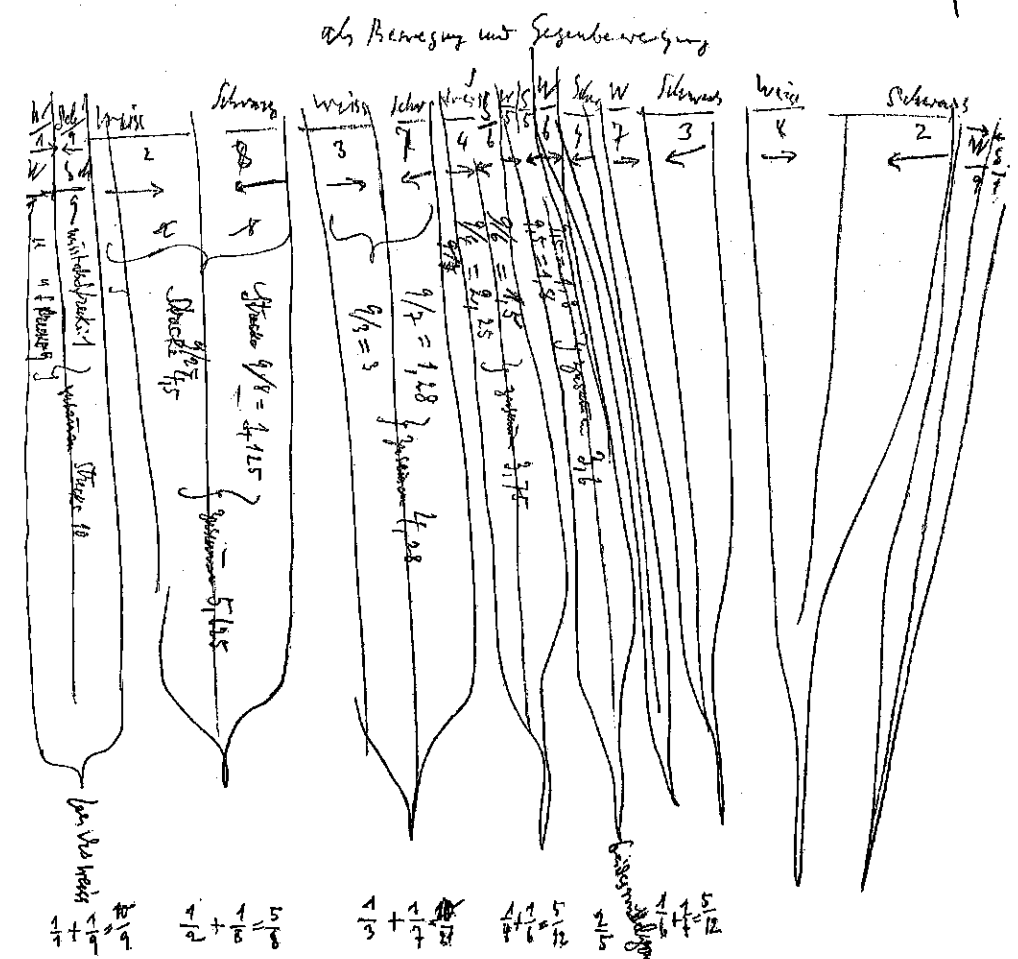
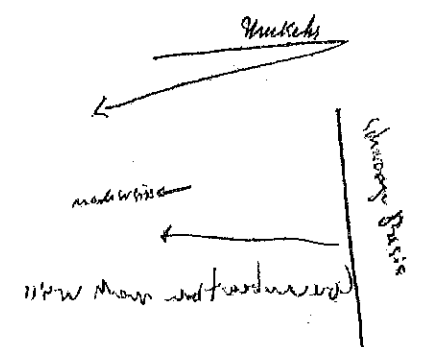
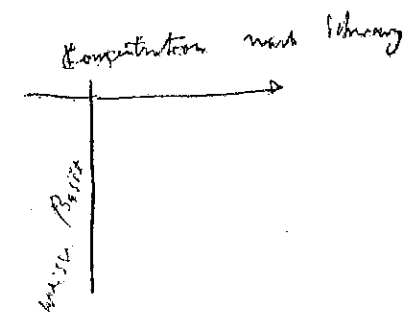
Black base

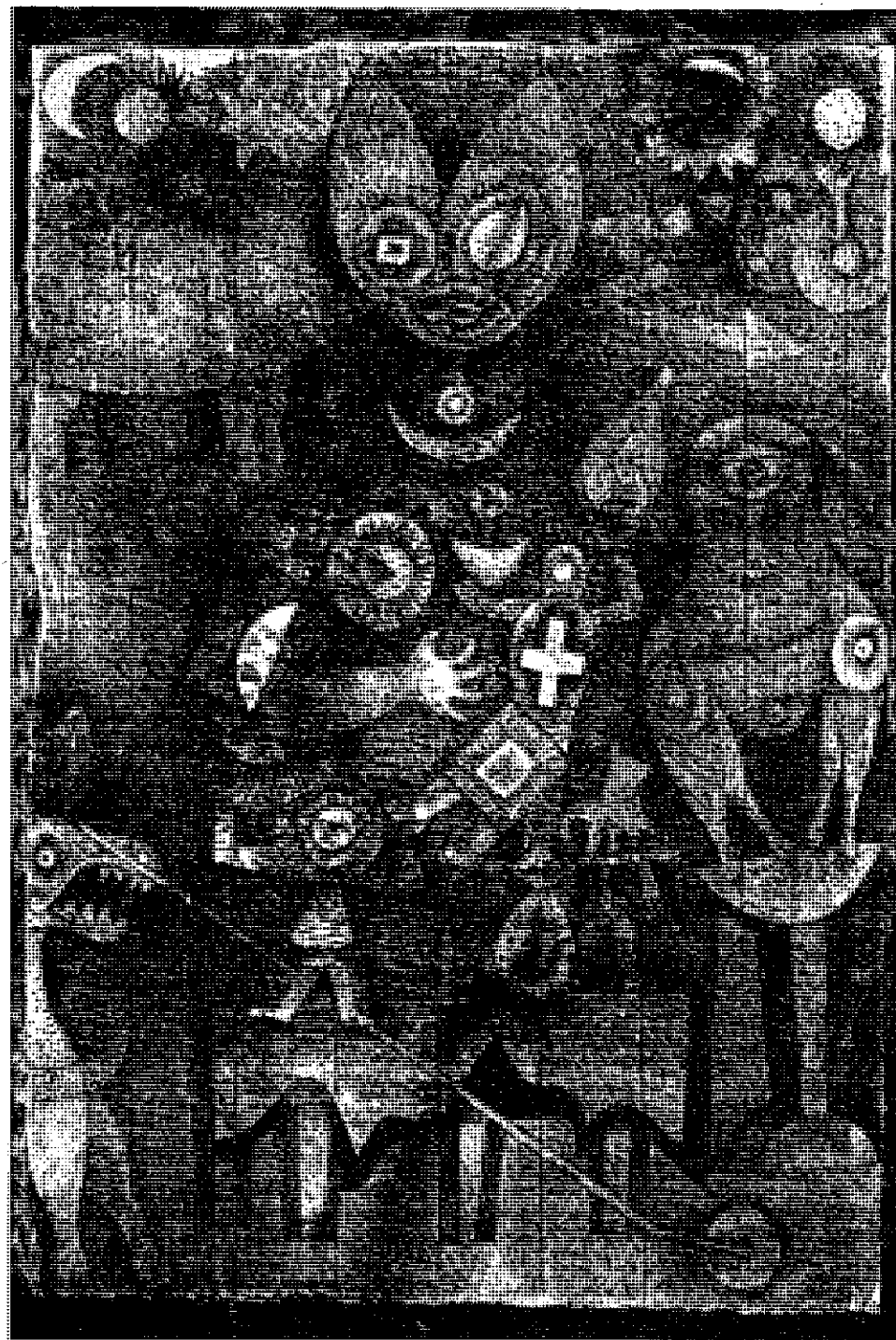
Towards the white

As movement and countermovement
42/36

¹ In mirror-writing.

Strips





1923/25: *Magic theatre*.
India ink and watercolour. 33.7 x 22.6.

Orientation Repetition

Exercise of 8 January 1924

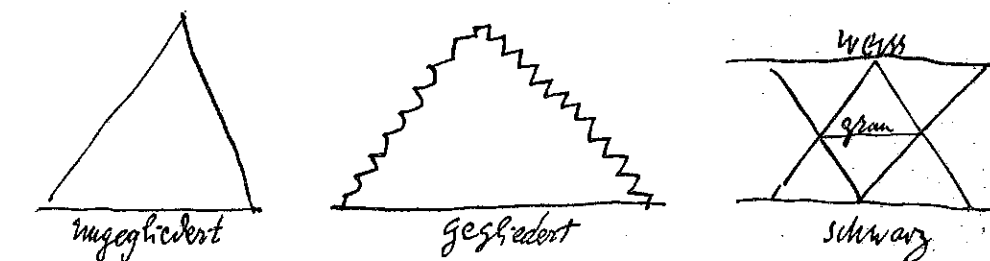
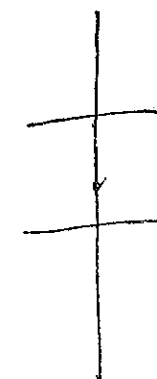
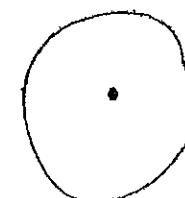
The exercise for this afternoon is to set up ranges from black to white, which may be either unarticulated or articulated, floating up or down, or moving forwards step by step.¹ These ranges may be set up freehand or by formula, with either wet paint or dry pigment.

¹ Cf. examples on pp.312, 321, 356 and 358.

White
Grey
Black

Unarticulated
Articulated

² Collection of exercises for the Theory of tonality,
for the preliminary course of the second term.



9 January 1924²

- 1 Correct student exercises
- 2 Measure and weight
- 3 Chaos and cosmos
- 4 The medium of tonality in the armamentarium of pictorial means
- 5 What happens afterwards (figuration)

Before figuration

Spatial order of ideational pictorial means at rest.

The opposite extremes of pictorial means are effective even in point form.

The intermediate stages less so. They require more scope to become sensible, weighable or critically perceptible. (Or sensibly criticisable.) 8/20.



1930/q 2: *The castle mountain of S.*
Gouache, 37 x 47.

1932/N 5: *Technical exercises.*
Oil on ungrounded cotton, 7 x 30.5.



The grey point in relation to black-white contrast. 8/21.

White above



White line

Grey middle

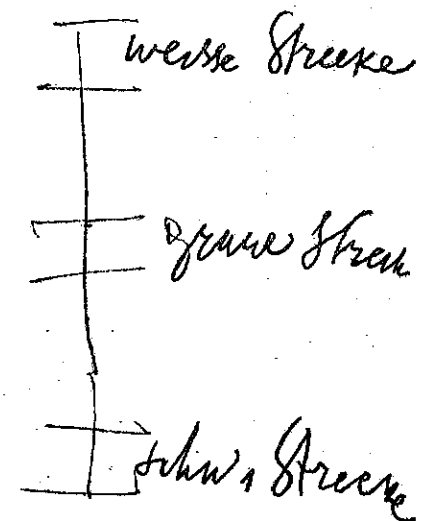


Grey line

Black below



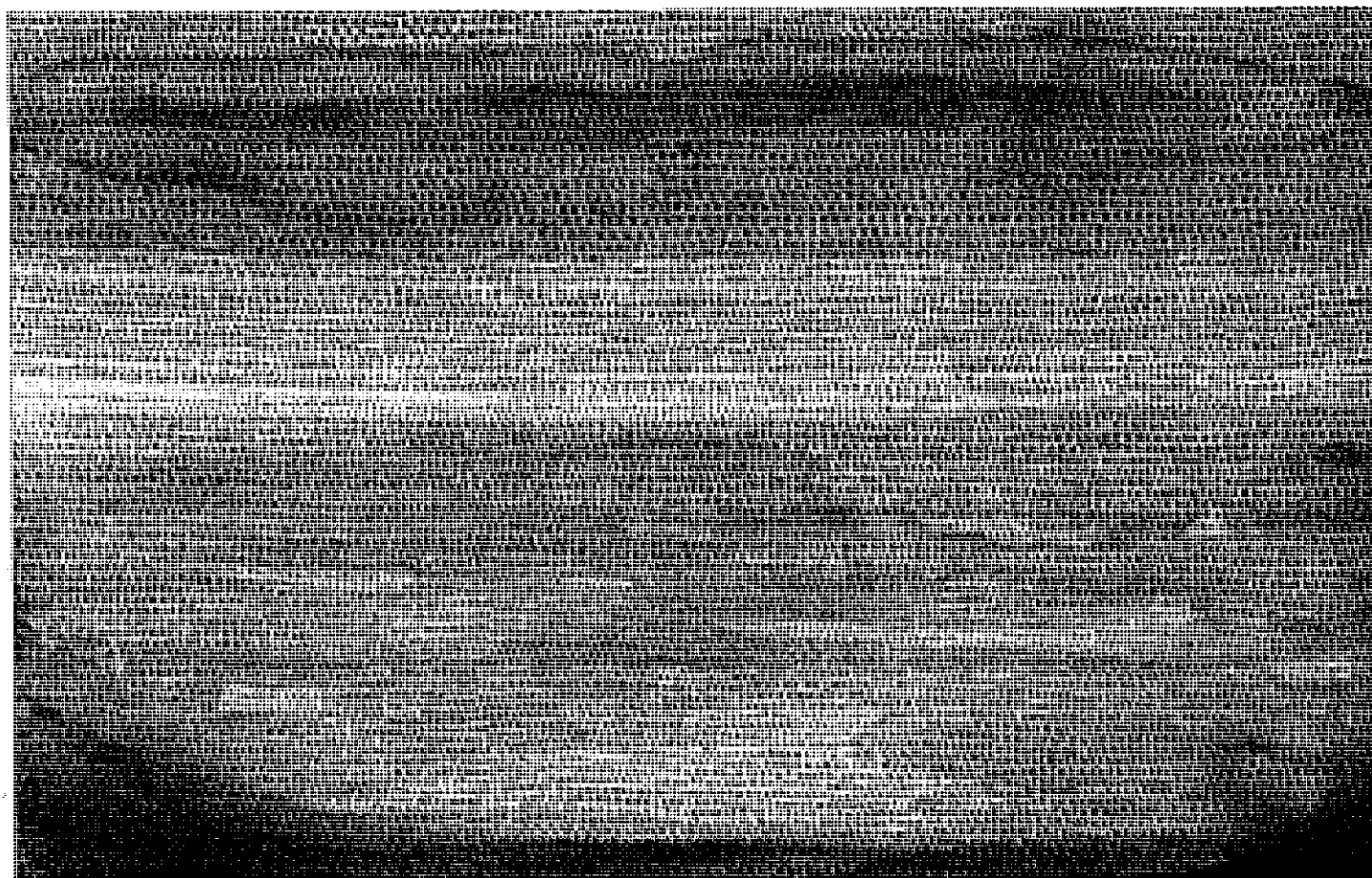
Black line



Why white above?

Why black below?

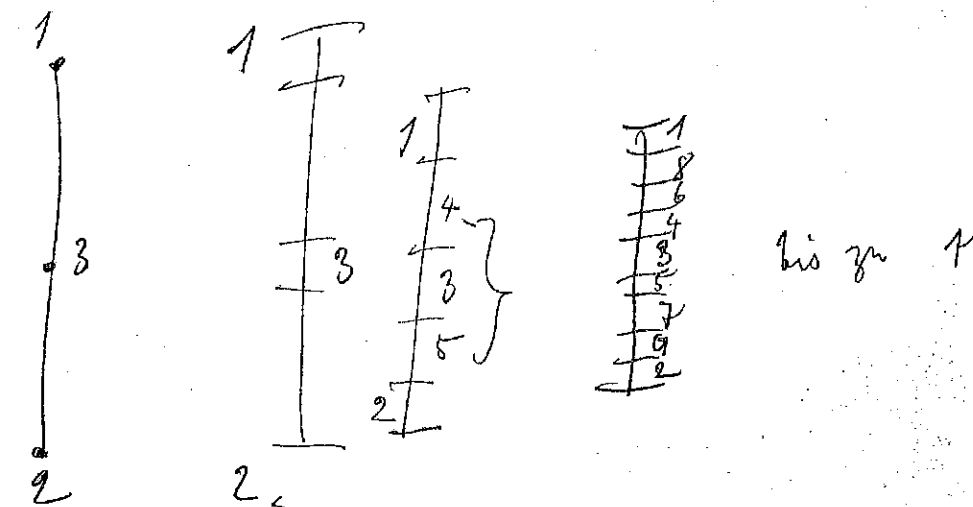
The problem of top and bottom, considered at the centre of the earth.
Infinite number and infinite subdivision of nuances from black to white.
Nuances not effective in point form.



1932/9: *Lowland plain*.
Gouache and watercolour.

up to 11

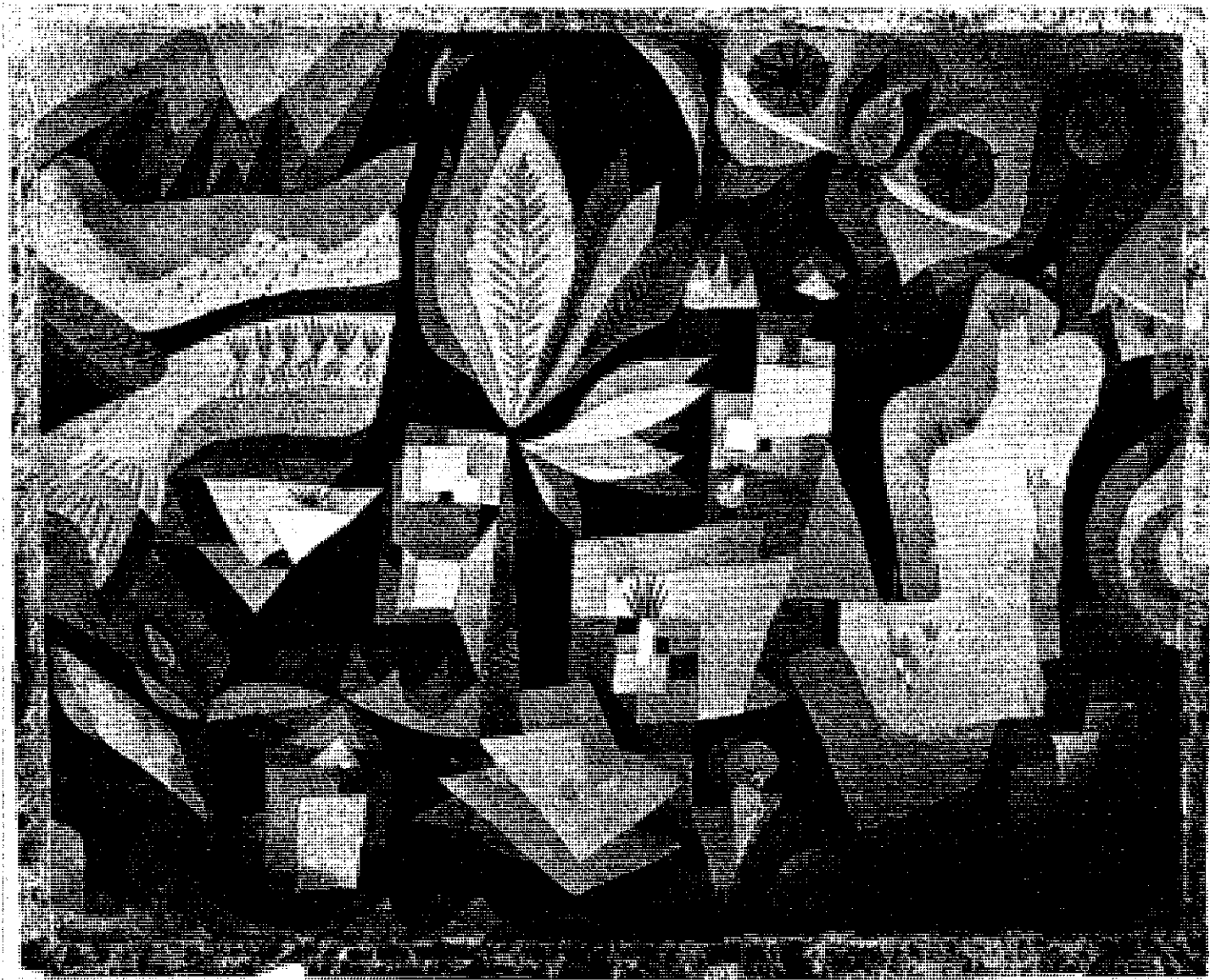
Triad (odd number) inherent in the balance of contrast. 8/21a.



This balance in nature.
8/22.

This balance synthetic, impoverished,
but clarified in perceptibility.





1921/83: *Cool dry garden*.
Watercolour edged in tinfoil.
24 x 30.5.

Amiable character
of the balance
(extremes keep at
a respectful distance).

Practical exercise:
Tonal scale (in 11 steps)
by two methods,
blending and glazing. 8/22a.

Blending
1 White contrast
2 Black contrast
3 Balance (medium grey)

Proceeding from 3, grey
a Grey upwards
b Grey downwards
Moving in jerks.
8/23.

Appearance of the work,
first exercise

Essence of the work,
first exercise

Glazing
(white given).¹
8/23a.

Enhancement required
(why?)

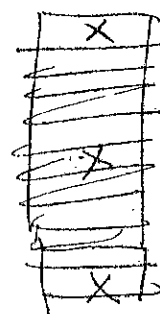
Overs



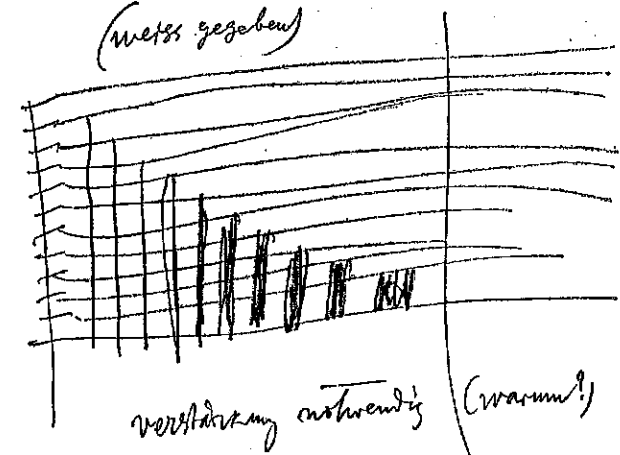
grau



Schwarz



Leopold
(weiss gegeben)



¹ For the glazing approach to black layer
cumulation, see the following pages.



1920/w 6: Landscape with poplars.
Watercolour on plaster-grounded cardboard.
27 x 21.5.

Rhythmic alternation and interlacing of tonal values.

Black-and-white methods and tonal scales

1 The blending method. 2 Black layer cumulation (black progression)

Absolute and relative difference. Subtraction and division methods

Relative black increment and relative white increment

Chaos (disorder). Natural and synthetic order

Apportionment of tension and naturalistic range from black to white

Scales as artfully ordered movement

Structural order of tonal means

Composite units and higher articulations

Structural combined with individual articulation

Scale structure – Unstructured movement

Viable solutions in the realm of tonality

Tonal action of wide and narrow range

Tuesday, 15 January 1924

We last took up the subject of tonal scales, graduated movement from black to white and return.

First method:

Blending white and black proportions

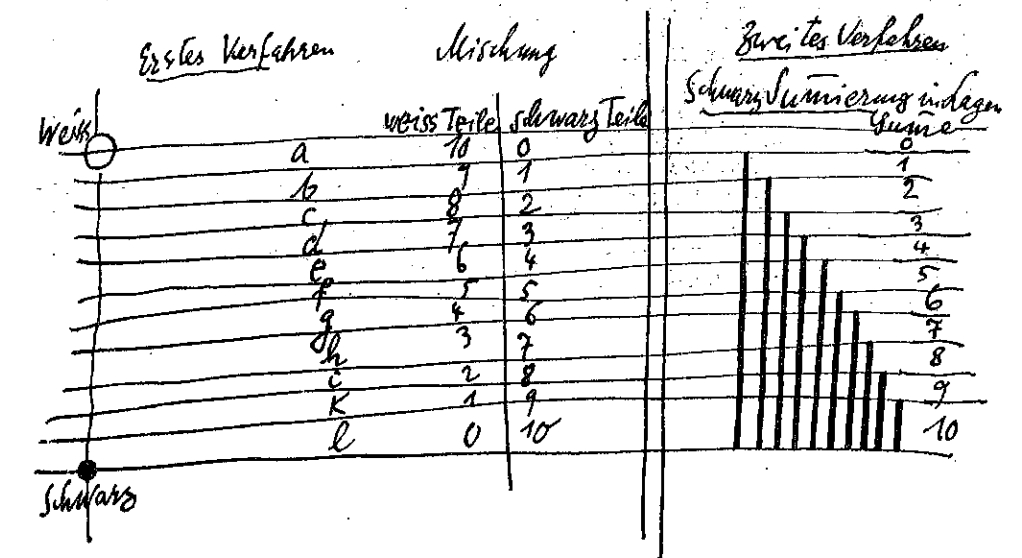
Second method:

Black layer cumulation

Cumulative total

White

Black



Dichtungsprogression 1 $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{4}$ $\frac{1}{5}$ $\frac{1}{6}$ $\frac{1}{7}$
1=9 9 $\frac{2}{2}$ $\frac{2}{3}$ $\frac{2}{4}$ $\frac{2}{5}$ $\frac{2}{6}$ $\frac{2}{7}$ $\frac{2}{8}$ $\frac{2}{9}$
9 $\frac{4}{4}$ 3 2,25 1,8 1,5 1,207 1,105 1

NB: Diese Progression (auf der Grundlage der in der Praxis beobachteten) liefert die reguläre Reihe von Basis zu Dichtungs

Dichtungs-Grad (Schwarz)

1.5	Flächeninhalt $1 \times 25 = 25^{\circ}$	Dichtungsgrad $2.25 : 25 = 9$	(fast) schwarz
1.8	Fl. Inhalt $1.5 \times 25 = 37.5^{\circ}$	Dichtungsgrad $2.25 : 37.5 = 8$	dunkelstes grau
2.25	Fl. Inhalt $1.8 \times 25 = 45^{\circ}$	Dichtungsgrad $2.25 : 45 = 7$	dunkelgrün
2.8	Fl. Inhalt $2.25 \times 25 = 56.25^{\circ}$	Dichtungsgrad $2.25 : 56.25 = 6$	mittleres dunkelgrün
3.375	Fl. Inhalt $2.8 \times 25 = 70^{\circ}$	Dichtungsgrad $2.25 : 70 = 5$	mittelgrün
4.0	Flächeninhalt $3.375 \times 25 = 84.375^{\circ}$	Dichtungsgrad $2.25 : 84.375 = 4$	mittleres Hellgrün
4.75	Flächeninhalt $4.0 \times 25 = 100^{\circ}$	Dichtungsgrad $2.25 : 100 = 3$	hellgrün
5.625	Fl. Inhalt $4.75 \times 25 = 118.75^{\circ}$	Dichtungsgrad $2.25 : 118.75 = 2$	hellstes grün
6.75	Fl. Inhalt $5.625 \times 25 = 140.625^{\circ}$	Dichtungsgrad $2.25 : 140.625 = 1$	(fast) weiß

Basis (weiß)

Density progression
1 $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{4}$ $\frac{1}{5}$ $\frac{1}{6}$ $\frac{1}{7}$

Note: This progression (based on an internal series of integers) yields a regular scale from the base to the target degree of density (black). 42/33.

I proposed two methods for plotting such scales, one of them rather complex but precise, the other simple but imprecise. With the second method there was trouble in attaining the deepest black. Enhancement or decrease of brightness grew attenuated step by step. The other, somewhat cumbersome, blending method would have avoided this difficulty.

Well then, when we take a closer look at this second method, we perceive beyond any doubt a constant over-all increase in the proportion of black as we progress with the series 1 2 3 4 5 6 7 8 9 10.

Close up, however - i.e. when we compare any one stage with the one immediately preceding - we soon appreciate the special character of the enhancement.

The first stage of black is univalent = 1
The second is bivalent = 2
The difference (from 1 to 2) is = 1.
The difference from the second stage of black to the third, from 2 to 3, is once again = 1, in the overall perspective.

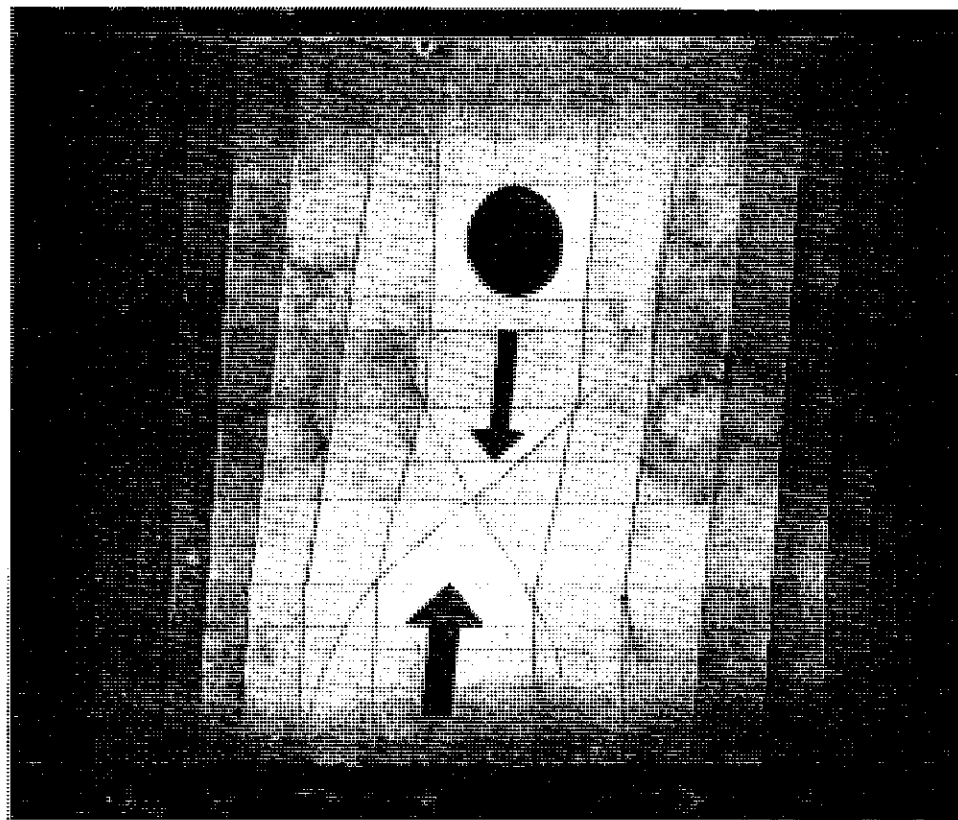
This difference of one, however, shrinks to $\frac{1}{2}$ in proportion to the bivalent stage. The difference from 2 to 3 (step 1) is relatively smaller than the difference from 1 to 2.

Absolute difference.
Relative difference, measured on the basis of the preceding stage.

absolute Differenz		relative Differenz auf der Basis der Vorstufe gemessen	
von	zu		
1	2	1	1
2	3	1	$\frac{1}{2}$
3	4	1	$\frac{1}{3}$
4	5	1	$\frac{1}{4}$
5	6	1	$\frac{1}{5}$
6	7	1	$\frac{1}{6}$
7	8	1	$\frac{1}{7}$
8	9	1	$\frac{1}{8}$
9	10	1	$\frac{1}{9}$

Thus this absolute difference of one (subtraction method), when measured on the basis of the prior stage (division method), actually means less and less and keeps on declining from an initial value of one to one-ninth.

In other words, the proportion of black increases absolutely, but at a relatively declining rate. It takes a good deal of time to reach the deepest black, at which point not even the tiniest further perceptible increase is possible.



1923/150: *Just before the lightning flash.*
Watercolour. 28 x 31.5.

¹ Crossed out: step.

Tonal progression without regard to intervals.
(Progression by density at static measure.)
46/11.

In the practical application of this method, however, this deepest black could scarcely be attained and the enhancement grew less and less perceptible. In terms of precision – i.e. when regular intervals from white to black were wanted – this was a great disadvantage, in rather startling contrast to the first step, from 0 to 1.

Here too the absolute difference seemed a harmless equivalent of one. The relative difference, however – one divided by the proportion of black in the preceding stage of zero – yields 1 divided by 0, or infinity.

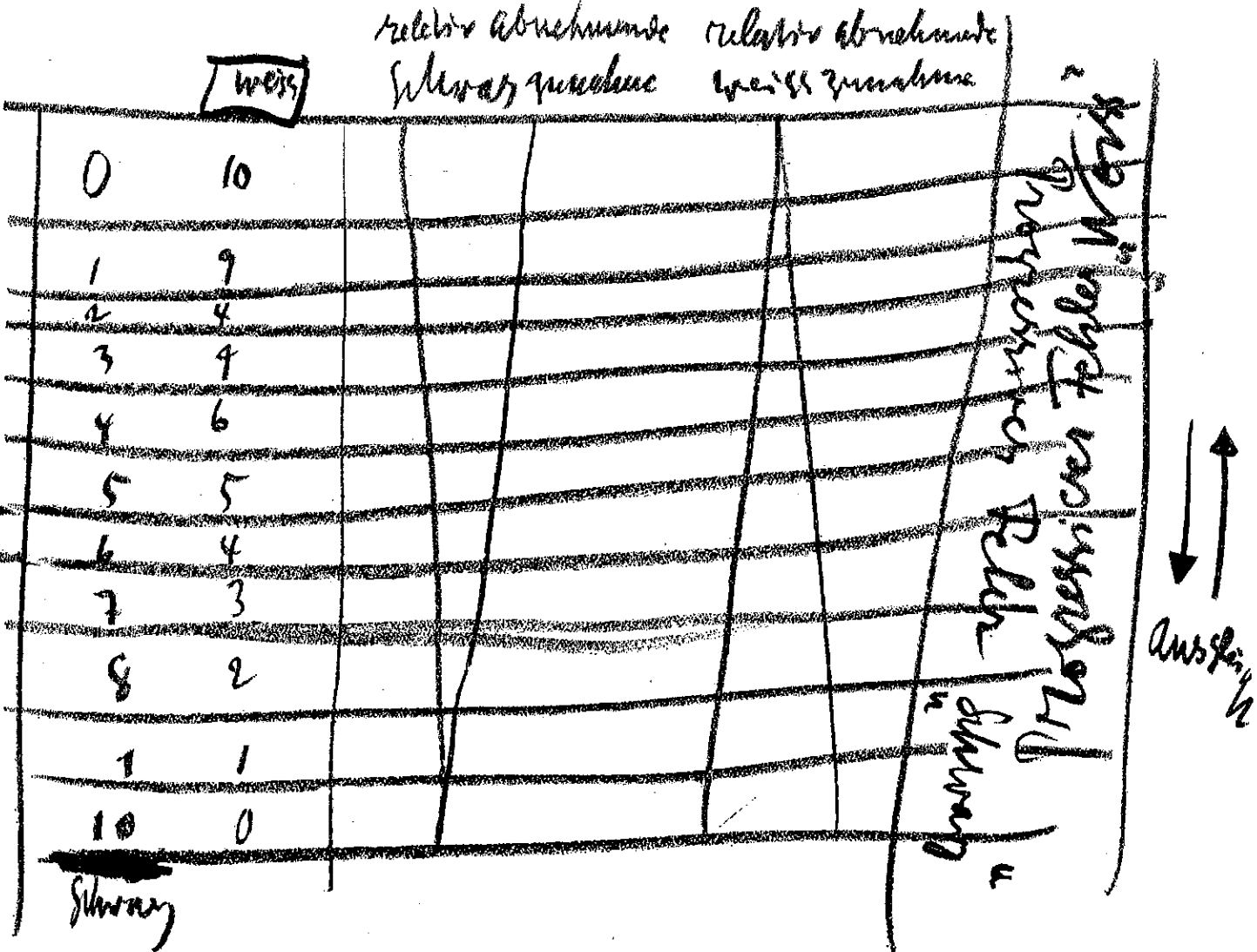
Thus our black progression begins with an infinite step, followed by a step of the difference value of 1. This constitutes an immense contrast.¹

Although all this seems rather dubious, the method is quite serviceable over-all, for in the first place we do not always proceed by even intervals, in the second place we do not always want to go all the way to the deepest black and in the third place we may enhance the various stages at will as we go along.



But in terms of precision, 'scientifically' speaking, the blending method ([1], p.341) is more serviceable. It is not one-sidedly oriented towards the black direction, but at the same time also runs from bottom to top, and is based on a medium grey.

Relatively declining rate of black increase
Relatively declining rate of white increase
Progressive 'black' error
Balance
Progressive 'white' error. 9/61a.



[1] Blending method
White
White proportions/
Black proportions
Black

Mischungsverfahren

	weisse Teile	schwarze Teile
a	10	0
b	9	1
c	8	2
d	7	3
e	6	4
f	5	5
g	4	6
h	3	7
i	2	8
k	1	9
l	0	10

[2] Relative increase in black and white

	Schwarz Relative Zunahme ↓	Weiss Relative Zunahme ↑
a	∞	1/9
b	1/1	1/8
c	1/2	1/7
d	1/3	1/6
e	1/4	1/5
f	1/5	1/4
g	1/6	1/3
h	1/7	1/2
i	1/8	1/1
k	1/9	∞
l	1/10	

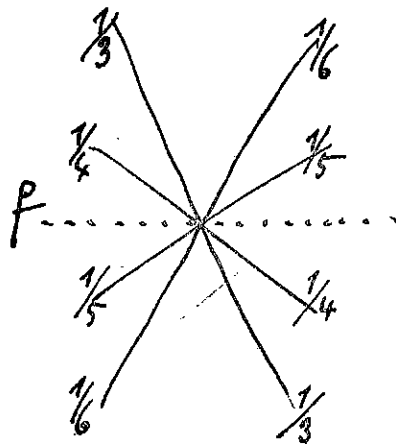
We note that there is complete balance; and if we now look back briefly at the black method,¹ we will realise how one-sided it is.

¹ P.335. Second method. Black layer cumulation.

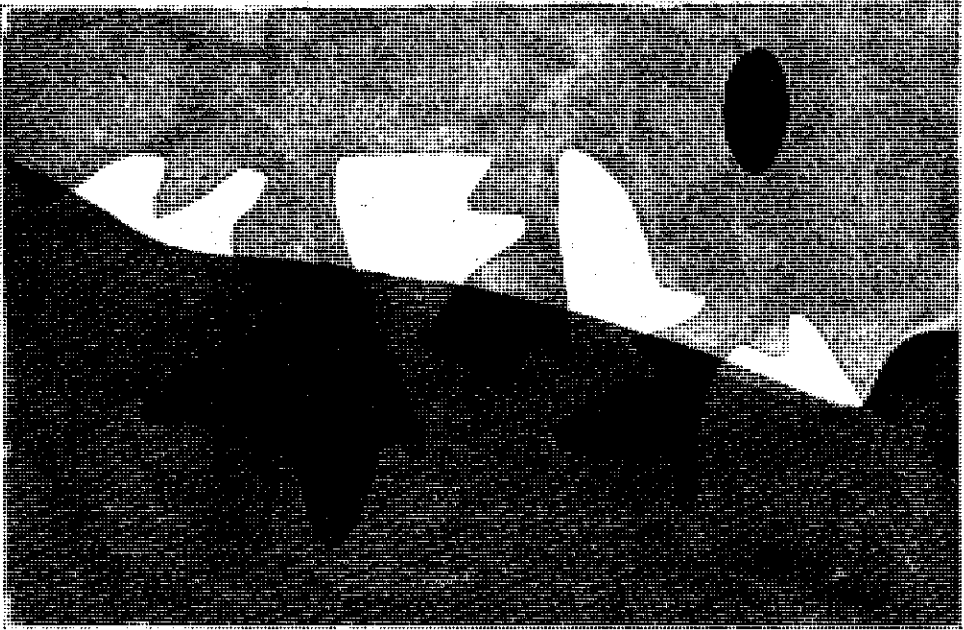
A decline in the difference between adjoining blacks
is not balanced by any increase in the difference between whites.
There is always the same given amount of white.

It is a moot point whether the scale proceeds at even intervals between white and black or whether there is a concurrent submovement within the progressive order. It is of no importance in the sphere of articulation, which I should now like to link to the black-and-white methods.

At the centre, however,
around grey stage f,
where the errors are of medium grade,
the equilibrium
is also of intermediate character.



1932/v 19: Above and below.
Black-and-white watercolour. 36 x 48.5.

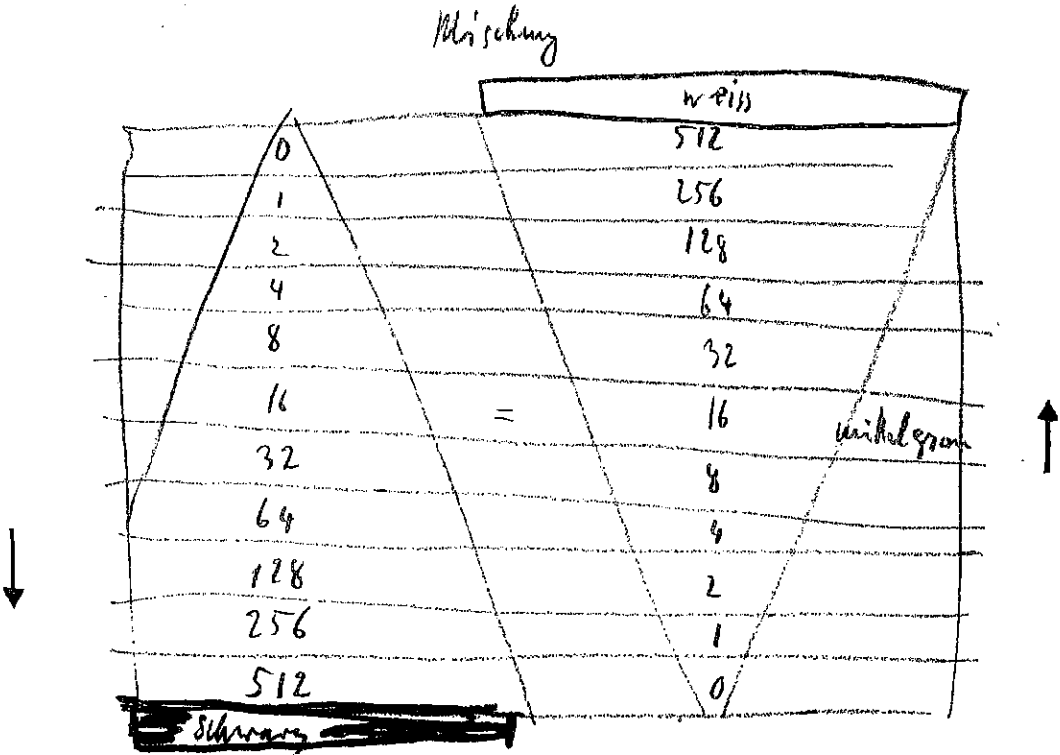


Blend
White

Medium grey

Black

Form-giving example 9/61

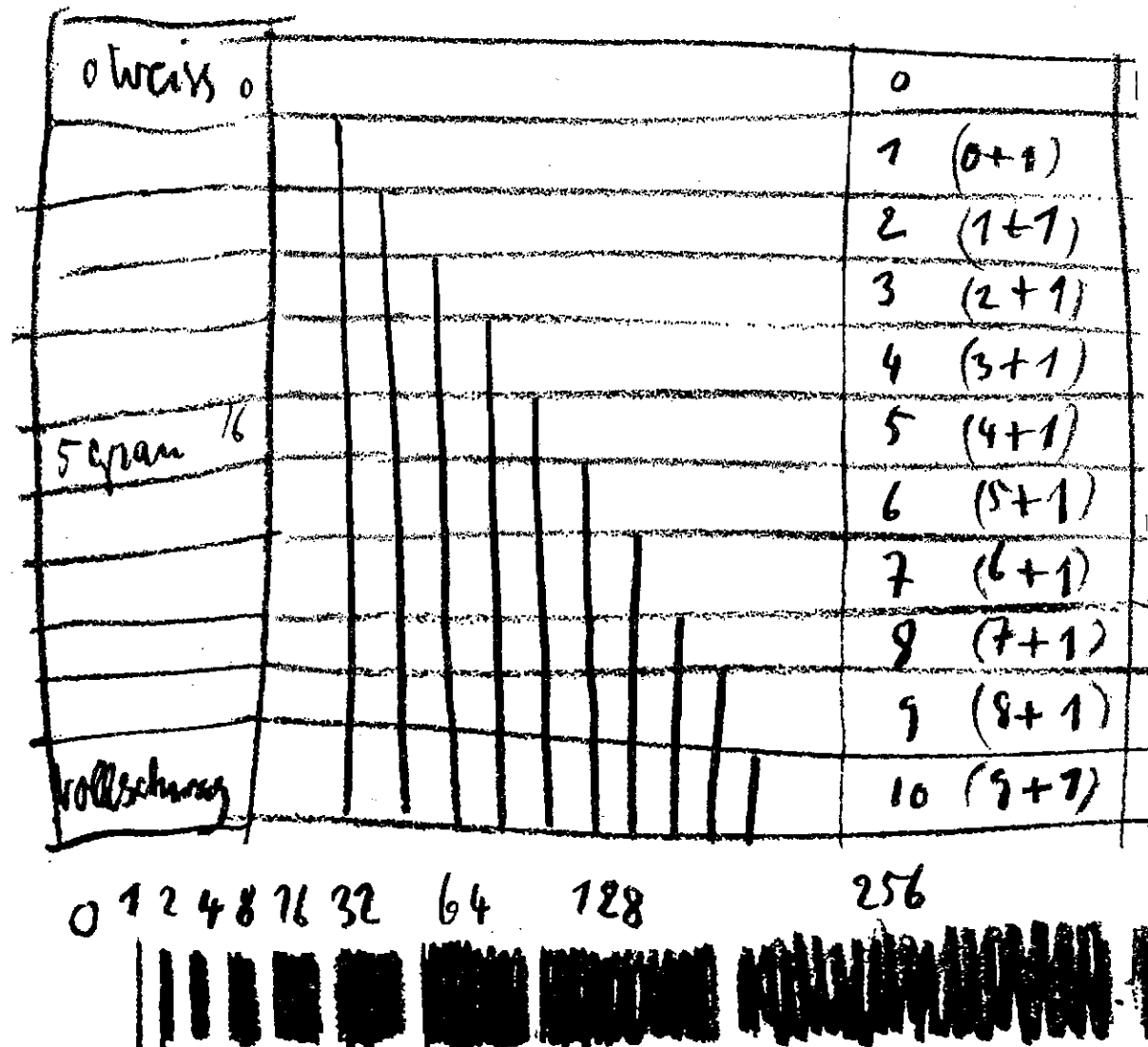


Layer enhancement
for the purpose of
achieving relatively
even increase
9/60

0 White

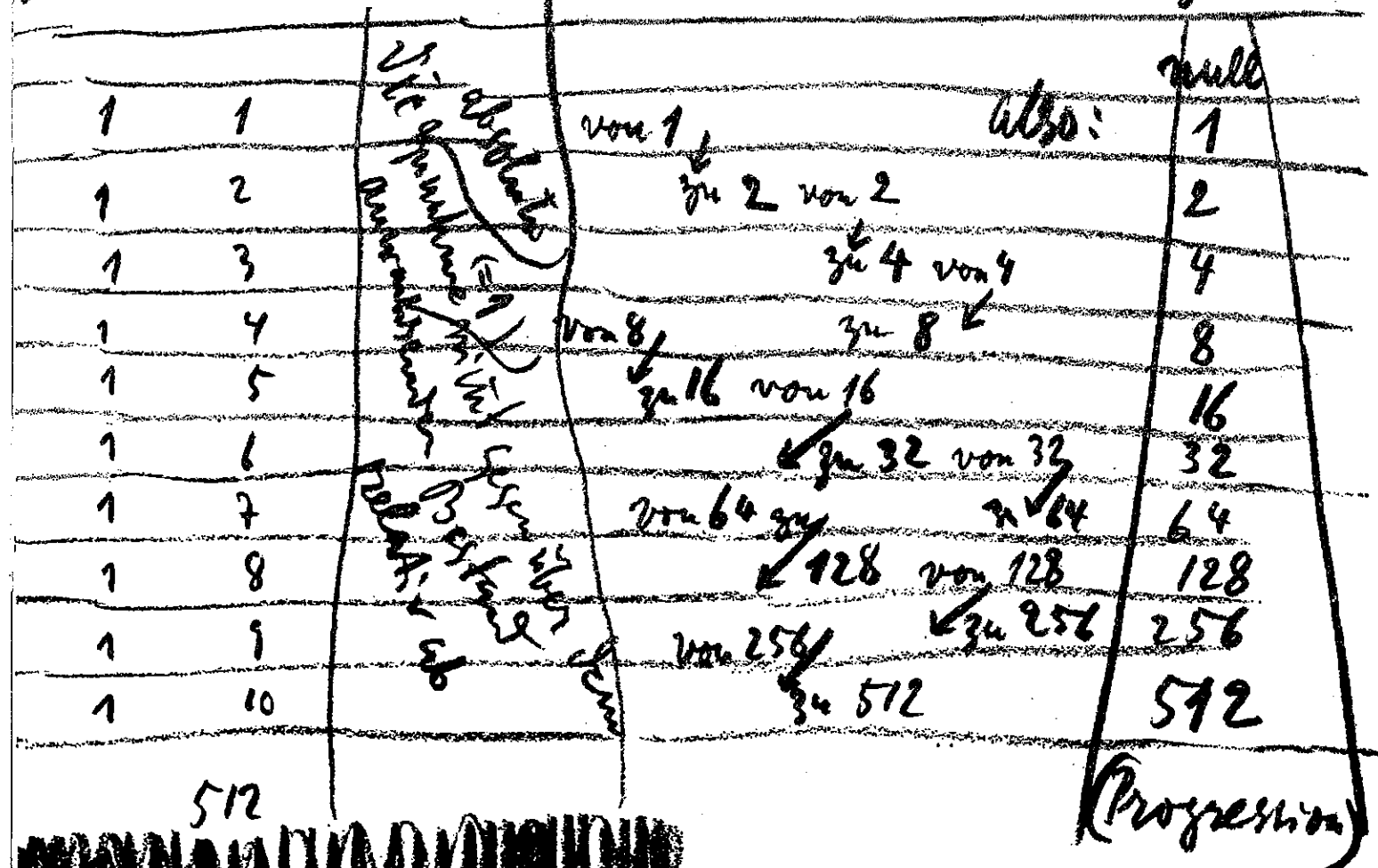
5 Grey 16

Full black



Zunahme vor = Bestand

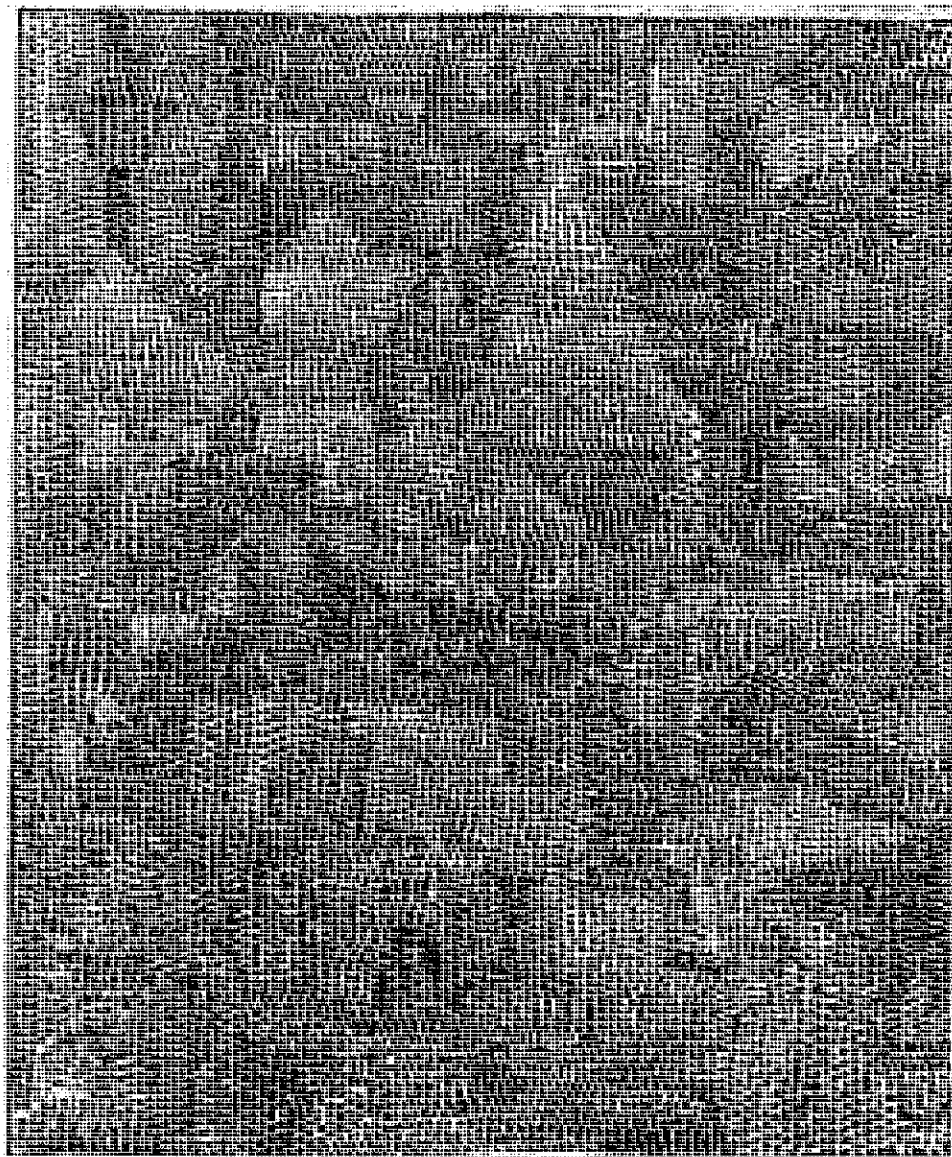
Layerverstärkung zur Erzielung einer
relativ gleichmässigen Zunahme



Prior Increase = Status.

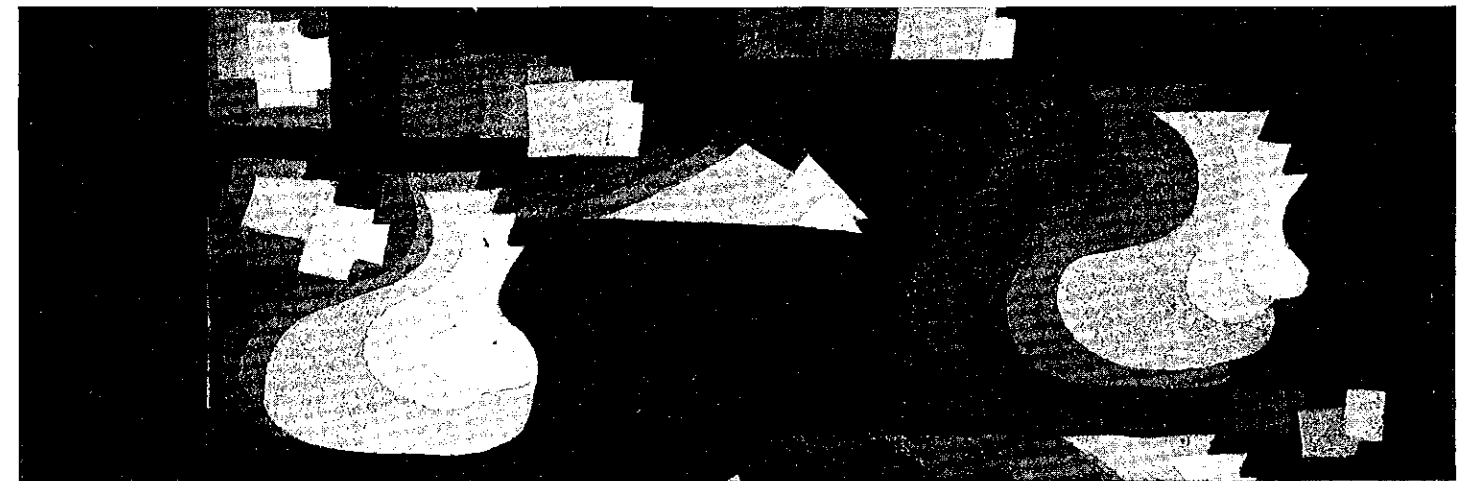
Absolute increase (=1)
declines in relation
to cumulative status.

(Progression)



1931/r 12: *Castle garden*.
Oil on canvas. 87.5 x 55.

'Naturalistic movement from white towards black
constitutes the finest order of movement.'
By way of contrast:
Articulated subdivision, using a scale.



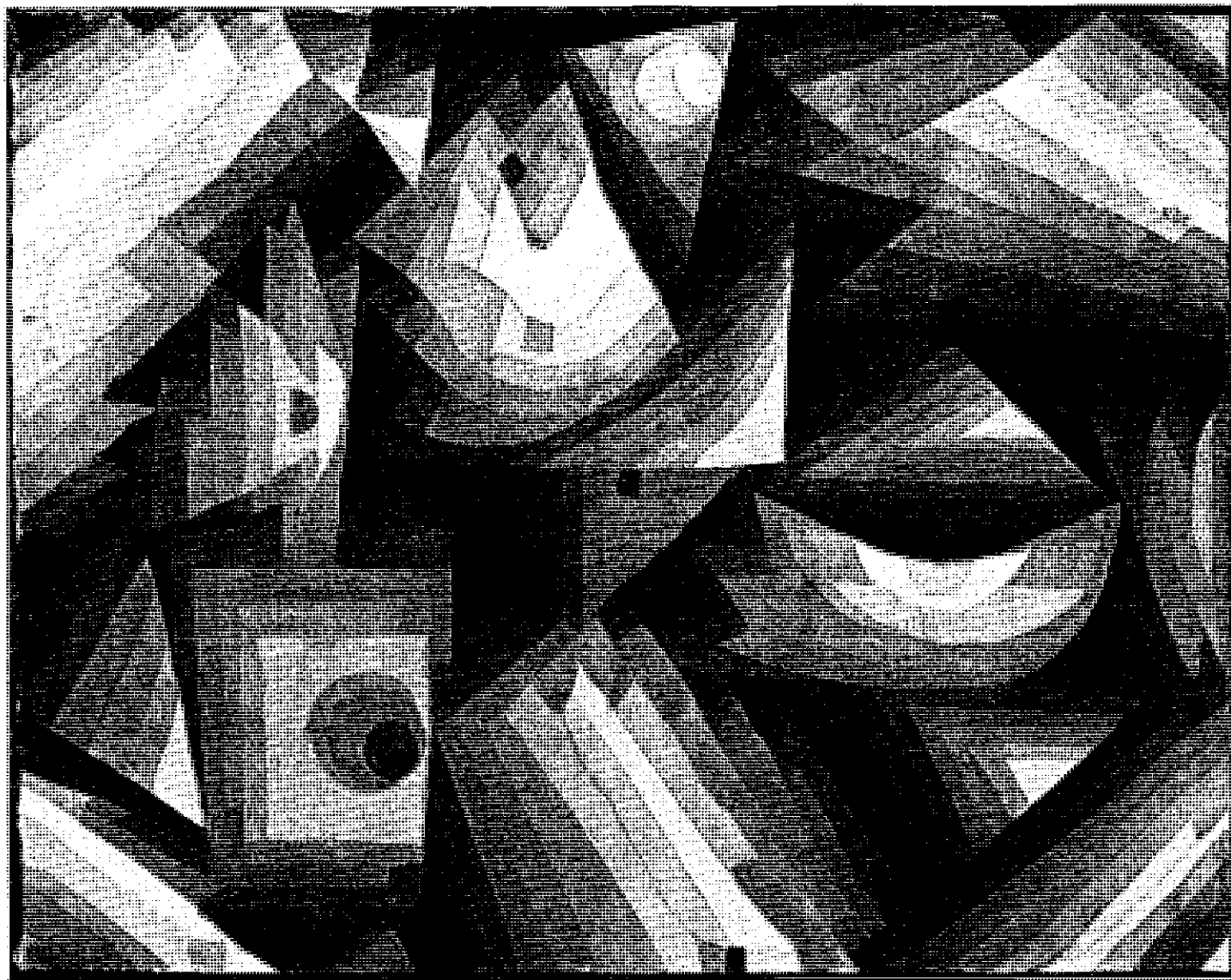
'Artfully ordered movement, reminiscent of the
structured division of tones we find in musical
scales.'

Detail from: 1921/89: *Fugue in red*.
Watercolour. 24.5 x 37. Cf. Volume 1, p.490.

- A **Chaos** (disorder)
B **Order** a) natural b) artificial

The natural state of a movement from white to black—to revert once more to this subject—is unarticulated rather than unordered. It is ordered in contrast to chaos, when light and dark are not yet sundered. It is ordered in the natural sense of a fine flow from one pole to the other. This (movement) range of tension is of infinite subtlety. The particles closest to one another are scarcely distinct. It is not possible to orient oneself definitely. A locale cannot be sharply fixed (confirmed), everything solid is gently but surely swept along by the flow, the fine current.

The naturalistic movement from white to black constitutes the finest ordering of movement. The main loci may be approximately determined as near-white, near-black and neutral grey regions. More is not possible.



1921/88: *Crystal gradation*.
Watercolour. 24.5 x 31.5.

Notes to p.349:

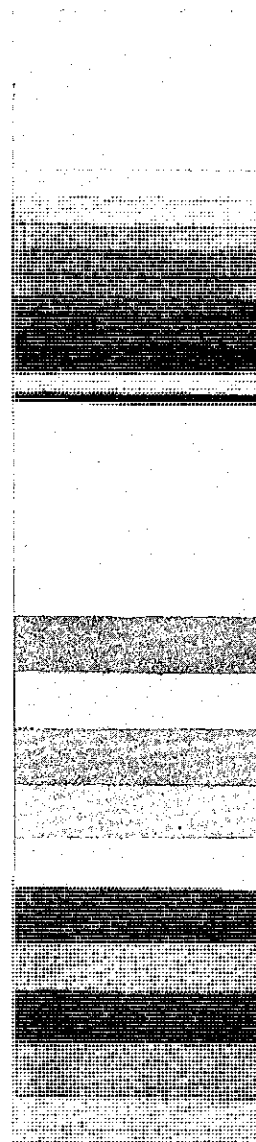
[1] Standing, gliding, striding, leaping in linear representation.

[2] Standing, gliding, striding, leaping in tonal representation.

Articulated movement with movement differentials in the tonal region.

Figuration example from Klee's lectures. 46/28.

Cf. Transition from leaping into striding and gliding, p.351.



1
nehmen
gleiten
schreiten
springen
ul. Schritte
go. n
in kleinen Schritten
in springen

- [1] Standing
- Gliding
- Striding, small strides
- large strides
- Leaping in small strides
- Leaping in jumps

Gliding is soft (fluid, gaseous)
Striding is firm
Leaping is hard } (solid)

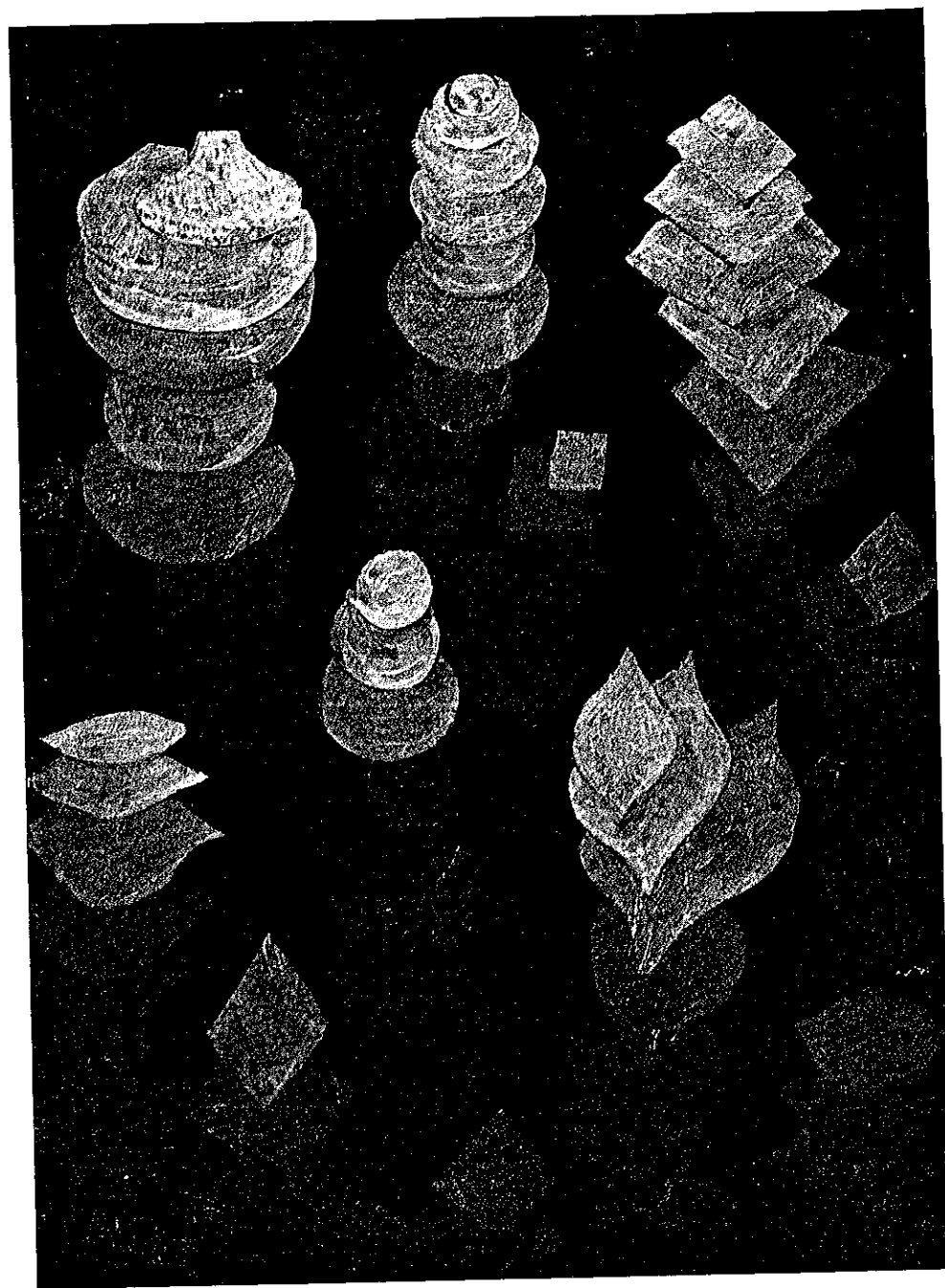
First step from general to special methodology on the basis of the concepts:

- a Limitation
- b Discontinuity
- c Regrouping, disproportion

Limitation without regrouping follows the dimensions of the general order in discontinuous gliding.

- [2] Standing
- Gliding
- Striding
- Leaping

in tonal representation



1922/174: Growth of night-blooming plants.
Oil on cardboard, 47 x 34.

Transition from leaping
to striding and gliding 60/13
A with defined limits
B with vague limits

- 1 White
- 2 Lightest grey
- 3 Light grey
- 4 Grey
- 5 Dark grey
- 6 Darkest grey
- 7 Black

Large leaps
Mediated leaps
Mediation enriched
Close to striding
Striding

- 1½
- 2½
- 3½
- 4½
- 5½
- 6½

Leaping
Large leaps
Leaping
Mediated leaps
Intermediate leaping
and striding
Striding
Gliding

Defined limits

Vague limits

Vague limits

Defined limits

Vague limits

Both cases are a gradation
of gradations
A) hard gradation
B) soft gradation

Übergang vom Springen ins Schreiten und Gleiten

A mit festen Grenzen

B mit losen Grenzen

- 1 weiss
- 2 hellst. grau
- 3 hell grau
- 4 grau
- 5 dunkelst. grau
- 6 dunkelst. grau
- 7 schwarz

17 17 17 17 17 14 7 14 7 12 ½ 4 5 ½ 7 12 ½ 4 5 ½ 6 7 12 ½ 3 4 5 5 ½ 6 7

große sp. Vermittelte sp. Vermittelte sp. nahe am Schreiten Schreiten

12 12 12 12 12 14 7 14 7 12 ½ 5 ½ 7 12 ½ 3 ½ 4 ½ 5 ½ 6 7 1

1 ½ 2 ½ 3 ½ 4 ½ 5 ½ 6 ½

12 12 12 12 12 14 7 14 7 5 ½ 4 2 ½ 2 1 2 2 ½ 3 ½ 4 ½ 5 ½ 6 7 6 ½ 5 ½ 4 ½ 3 ½ 2 ½ 1

Springen große Springe Vermittelte Springe zwischen Springen ins Schreiten Schreiten

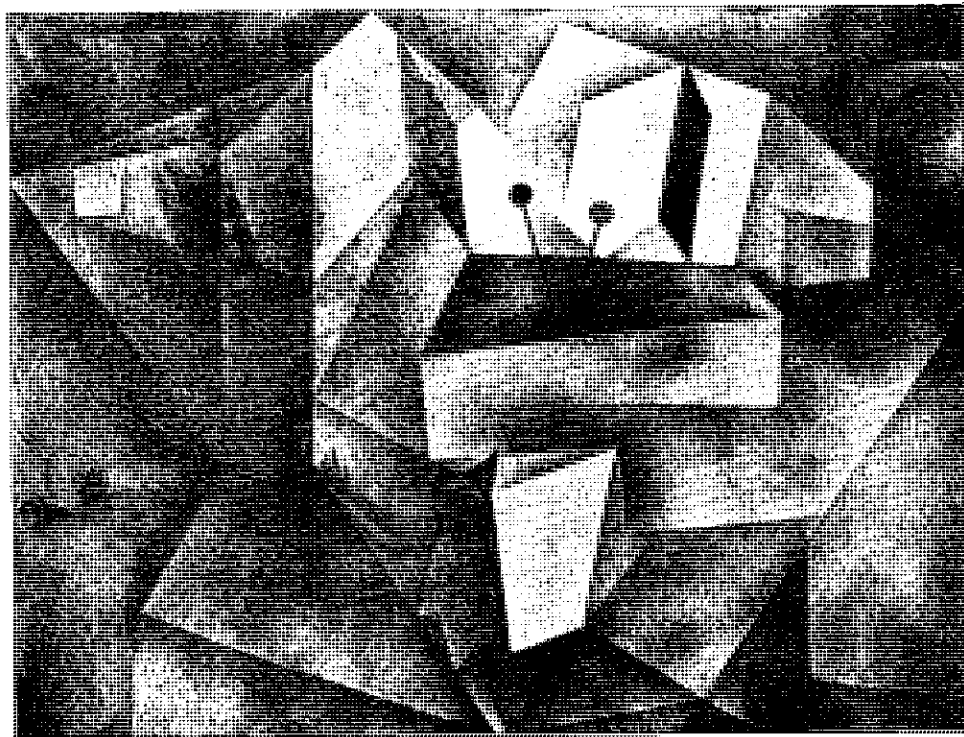
Beide Fälle sind eine Stufung von Stufen
A) hart gestuft B) weich gestuft

A scale in itself is already something artful, a synthetically frozen movement. Its inherent crudeness clarifies. Every component line may be firmly related to the poles. We always know where we are and how we got there.

But of course, movement based on natural law may have been perceived with the ear rather than the eye. It may have been like the natural rise and fall of sound, the swelling and ebbing roar of a hurricane. In such an eventuality, artfully ordered movement may be reminiscent of the stringing together of sounds, as in the unique case of musical scales.¹

¹ Manuscript note:

'Subjects: measurability, weighability, extension, density, expansion, elasticity (inelastic expansion).



1930/s 2: *Tympanum-organ*.
Oil and watercolour on paper on cardboard.
31 x 40.5.

Noticeable thresholds may tend to form at the point of incipient movement. Suitable methods for preventing this are progression in dimensions and progression in value sequence.

Integers 'progressively' pushed back 11 points.

Integers regularly pushed back 11 points.

60/90 and 90a.

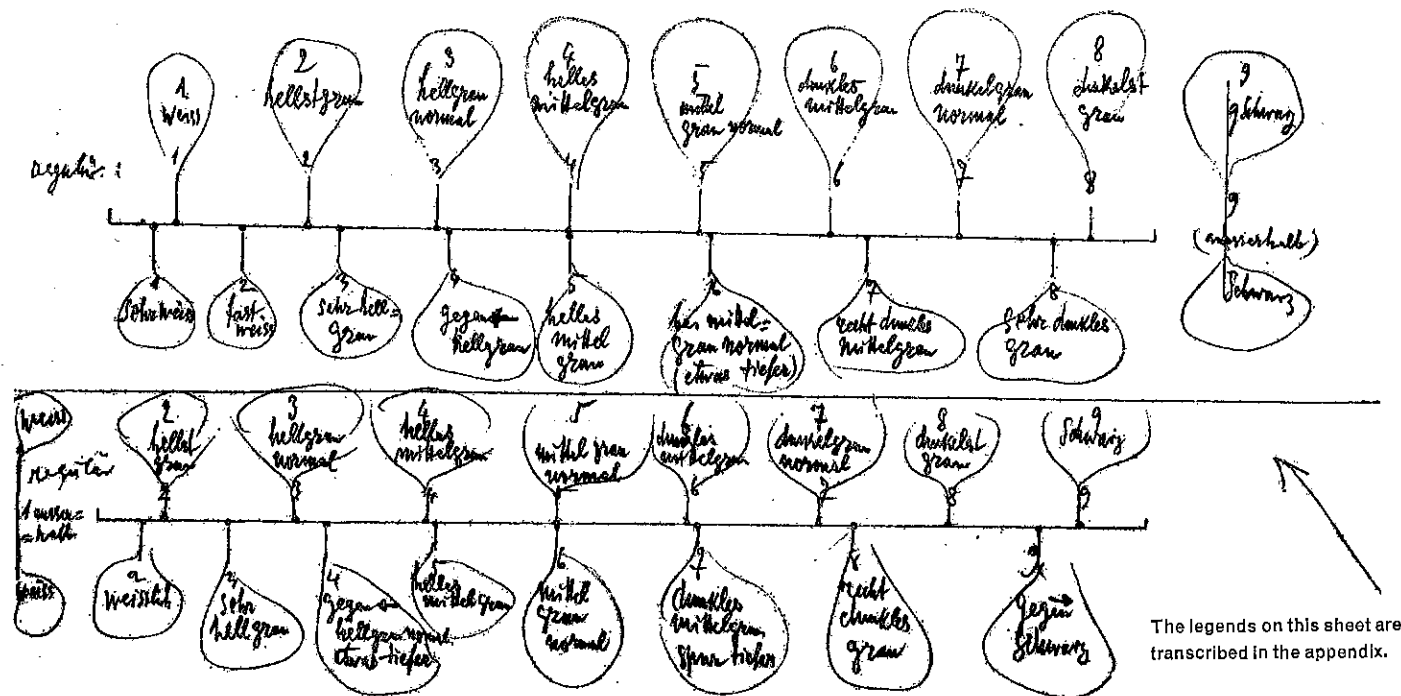
a) 'White base'

b) 'Black base'



ineinander
gehehalten : 10 Grenzstriche - 9 Punkte

Gegenüberstellung der mittleren
regulärer und progressiver Teilbecken



The repetitive element characteristic of structures is, in this process, the concept of enhancement or dwindling, occurring again at every stage.¹

a b c d e f g h i k l

b7a c7b d7c u.s.w. an Schwarz gehalten
a7b b7c c7d u.s.w. an Weiss gehalten

a b c d e f g h i k l

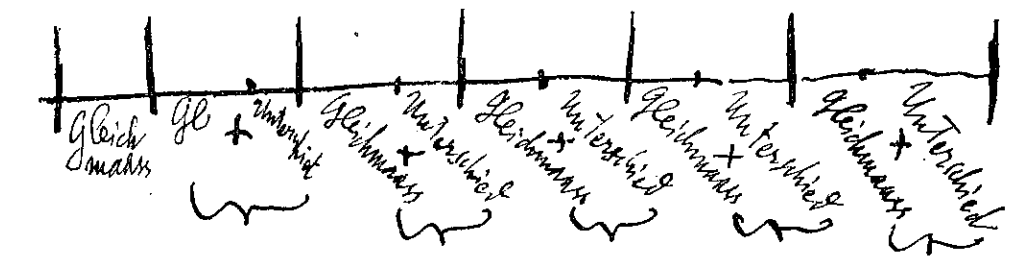
b > a c > b d > c etc., relating to content of black.

a > b b > c c > d etc., relating to content of white.

The concept of 'larger' is repeated: Wherever, within a major movement, there is a concurrent minor movement, we are once again dealing with a repeating element.

The value differential between a and b
is larger than between b and c
The value differential between b and c
is larger than between c and d

Symmetry + differential

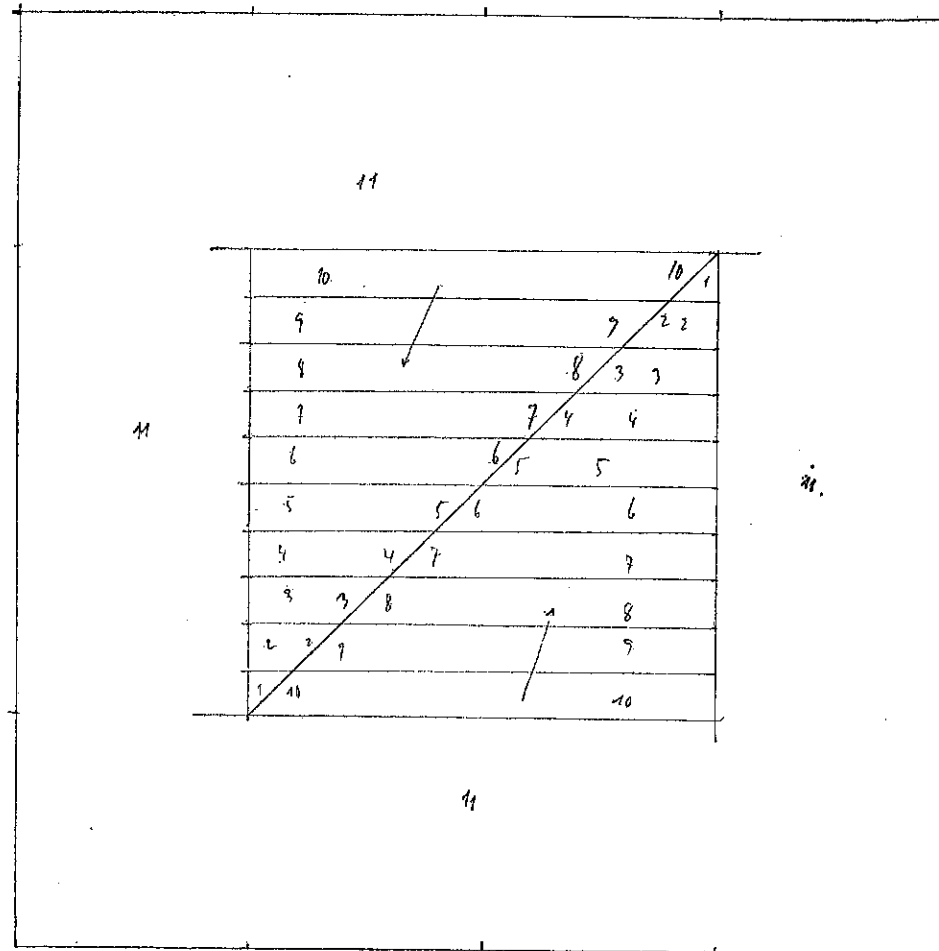


The word 'larger' is again repeated. The composite unit 'repeating symmetry plus differential' displays divided enhancement, a composite structural element.

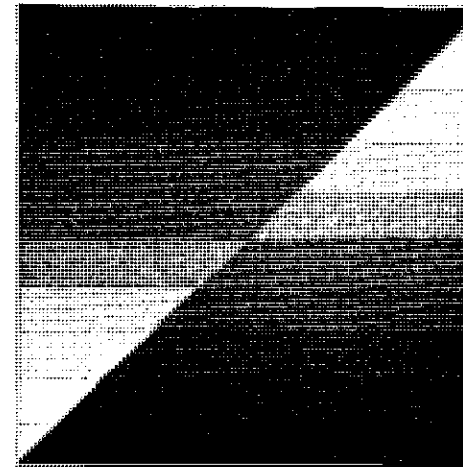
eindeutige Bewegung und Gegenbewegung
(auf der Fläche)

Unambiguous movement
and countermovement (in a plane).
60/85.

We now pass to higher articulation in the tonal sphere; and this, as we know, lifts us above structure as such; but since a scale is a special case of structure, we also rise above scale as such; for in order to display an aspect of higher articulation, the arrangement of tonal values must undergo comprehensive change. To rise but a little bit at the outset, I propose that we take the simplest case. Let us cut the scale into two parts, in such a way that the dividing point will leap to the eye.



1. hellst. grau
2. hellst. grau
3. } zwei hell grüne Werte
4. }
5. hellere mittel. grau
6. normale grau (mittel)
7. dunklere mittel. grau
8. } zwei dunkel grüne Werte
9. }
10. dunkelst. grau
11. schwarz



- 1 White
- 2 Lightest grey
- 3 } Two values of light grey
- 4 }
- 5 Light medium grey
- 6 Normal grey (centre)
- 7 Dark medium grey
- 8 } Two values of dark grey
- 9 }
- 10 Darkest grey
- 11 Black

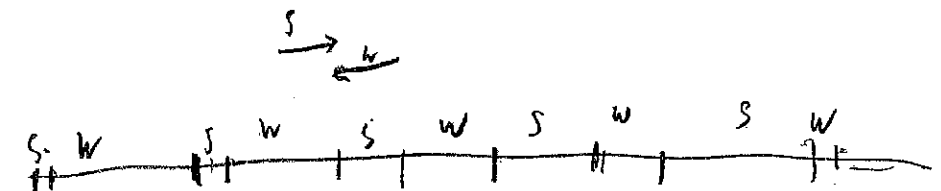
1. Simplest case of higher articulation.

Figuration example of the next higher stage of articulation.

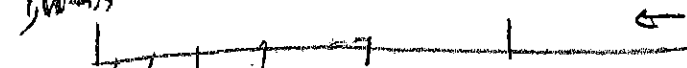
Balance between two progressions.
60/117.

1. f e d c b a | l k i h g f
Weiss | Schwarz

Ausgleich 2er Progressionen



Analyse
Weiss

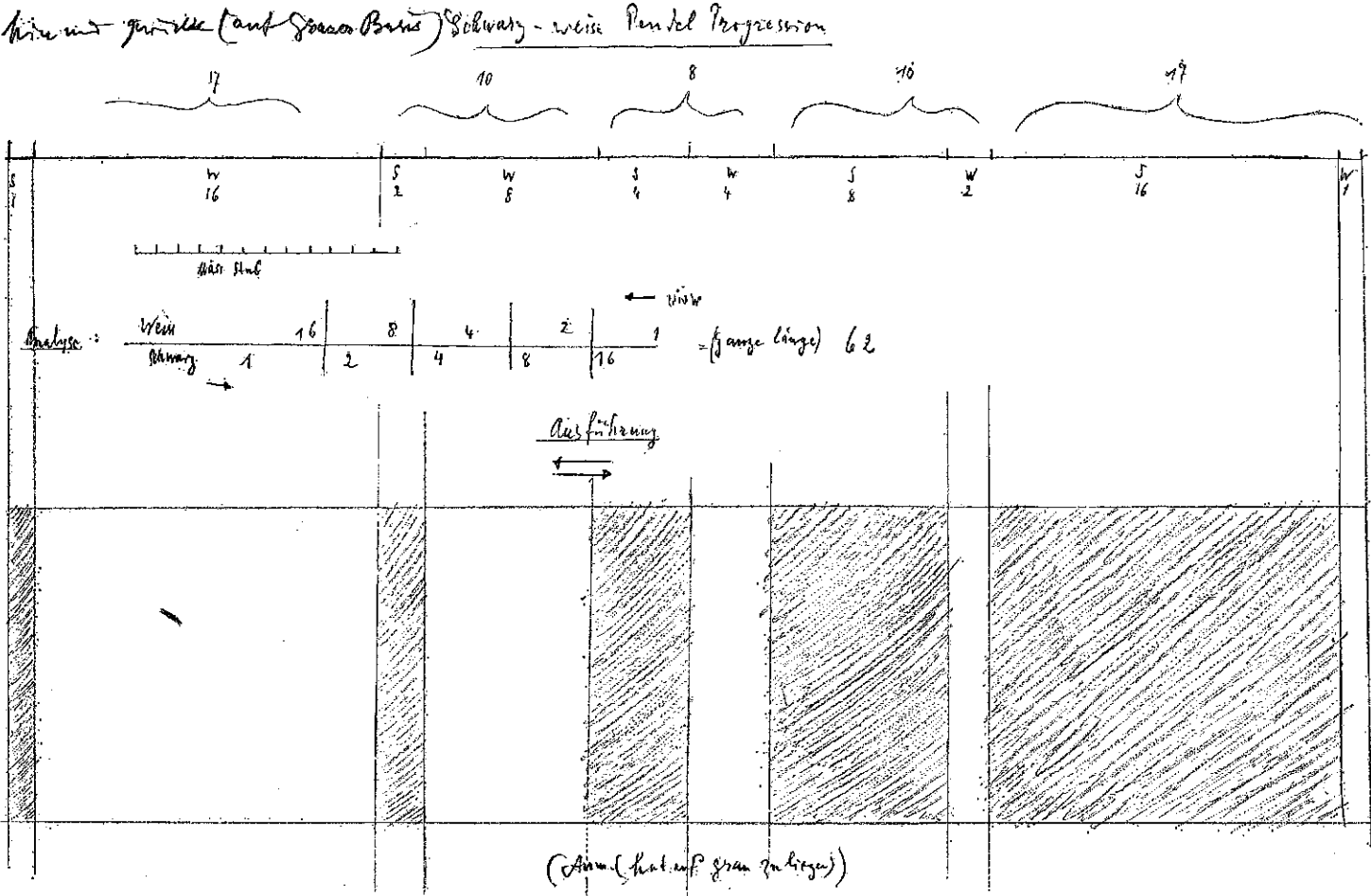


Schwarz



To and fro (on the basis of grey). Black-and-white shuttle progression. 60/107.

Analysis: Execution.

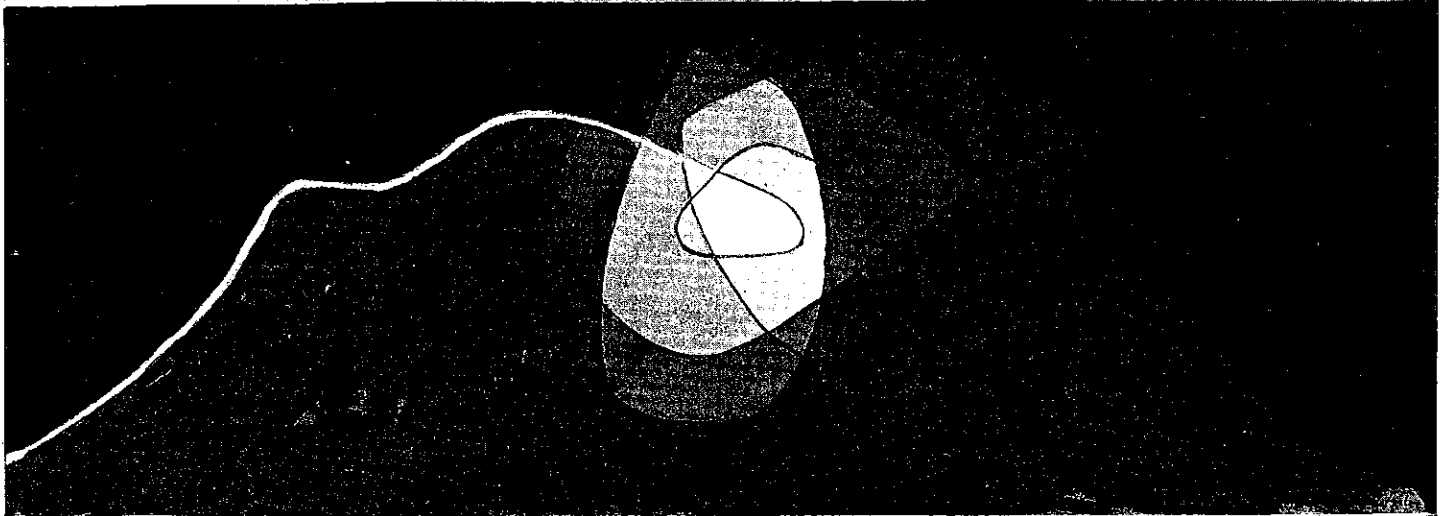


Note:

This must overlie grey.

1932/V 12: *Unravelling ball of wool.*
Black-and-white watercolour.

In this case, the split between the two main parts must naturally fall at a) and l), where white and black clash sharply, whereas only small increases or decreases occur step by step within the two parts.



In words:

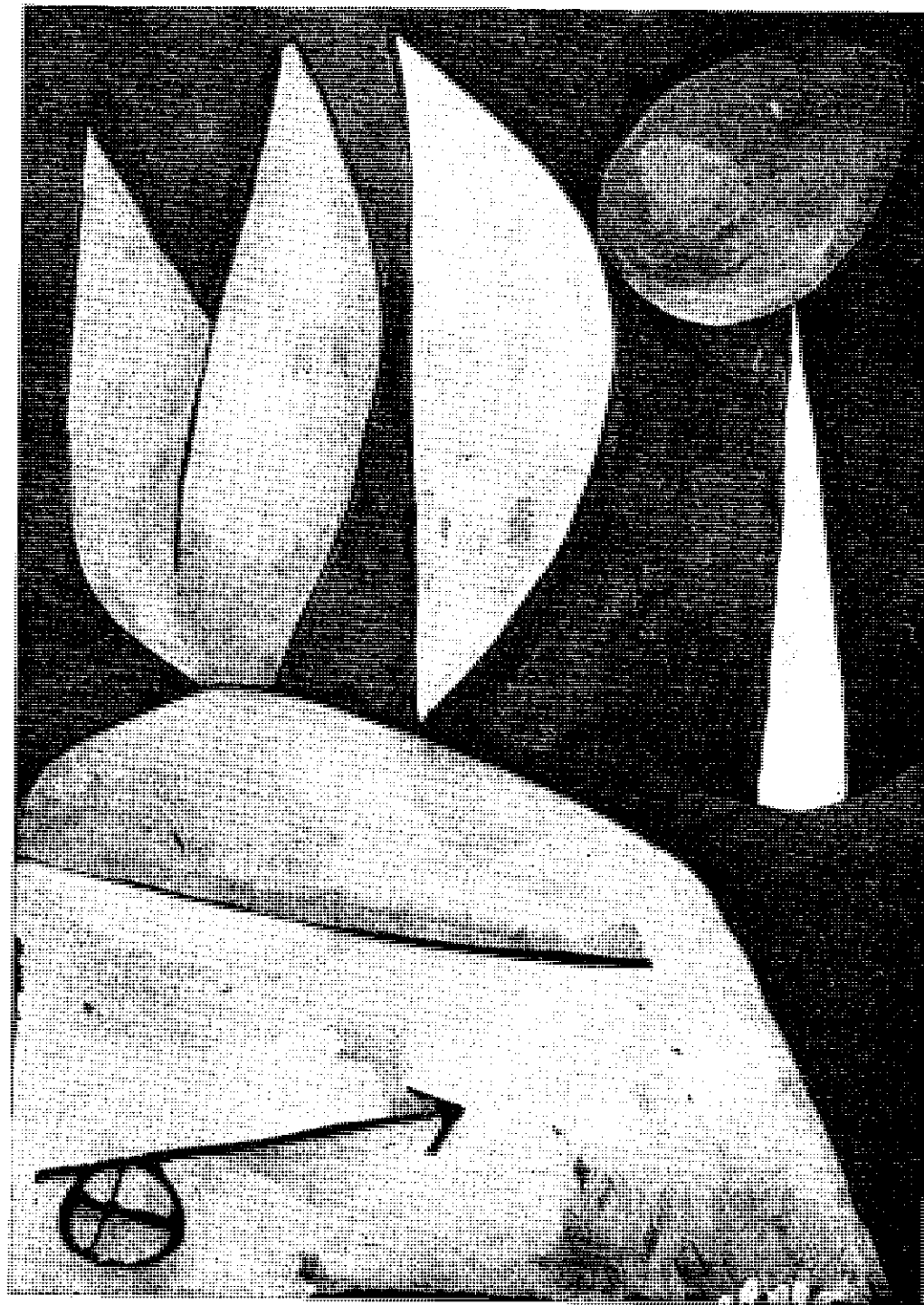
From grey towards white

From black towards grey

in Worten:

Von Grau nach Weiss / von Schwarz nach grau

Beyond this simplest case, we are led to the broadest scope for combinations.

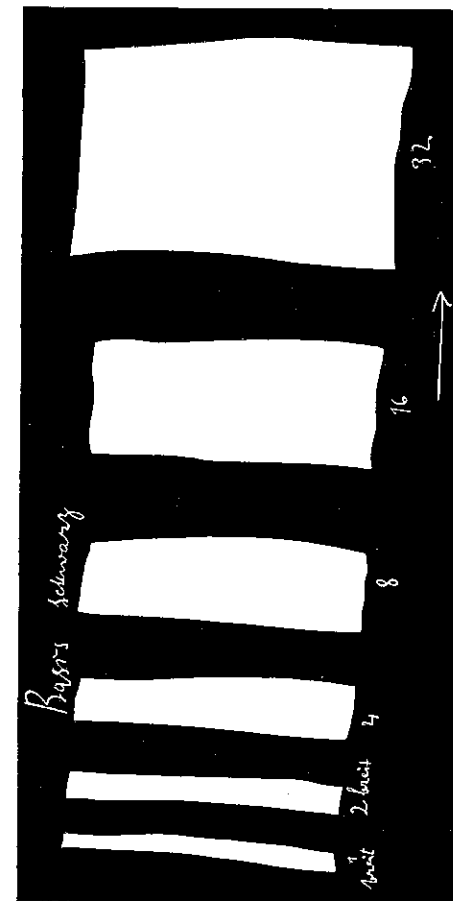


1939/vv 6: *In position.*
Watercolour. 31.5 x 22.

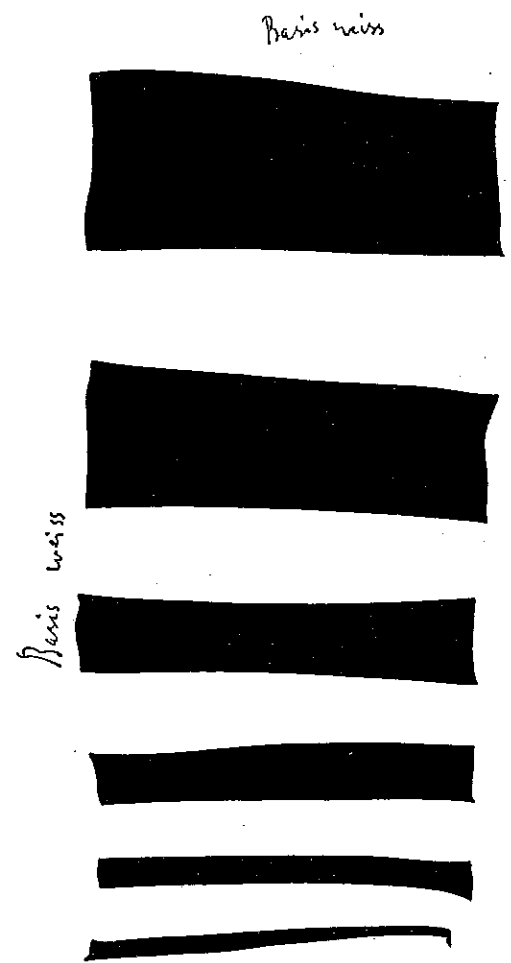
Progression of the series of integers.
46/14.



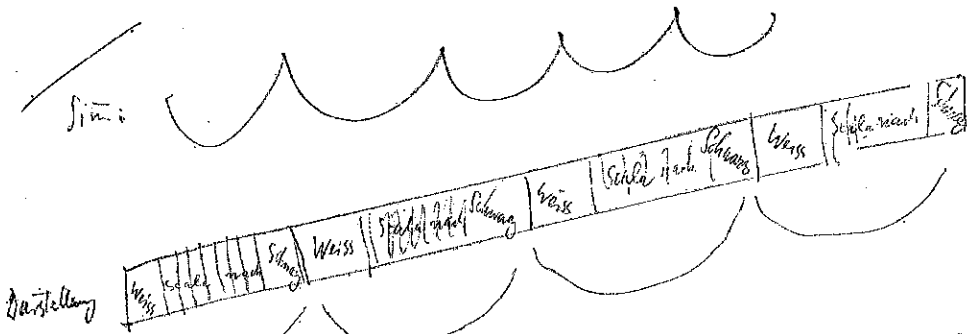
On a black base.
Sole active medium: White.
(Note: Intervals must also increase progressively) 60/105.



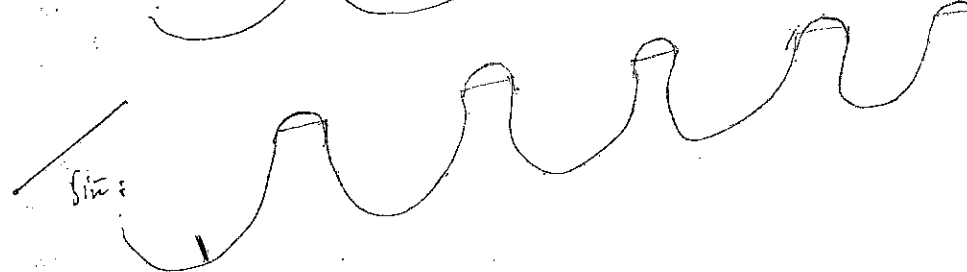
On a white base.
Sole active medium: Black.
60/106.



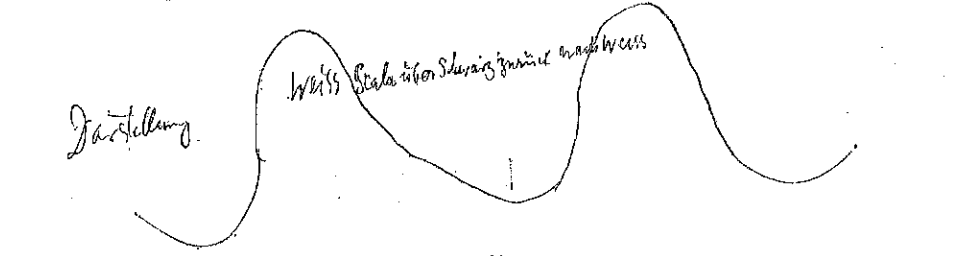
Cap. Specific Ordningen)



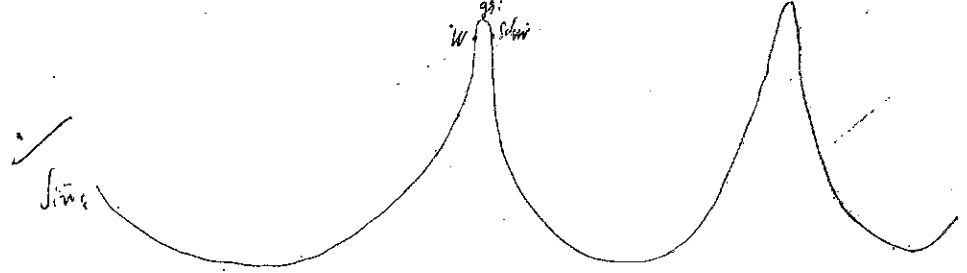
Representation
White. Scale towards black.



Representation
White. Scale by way of black
back towards white.

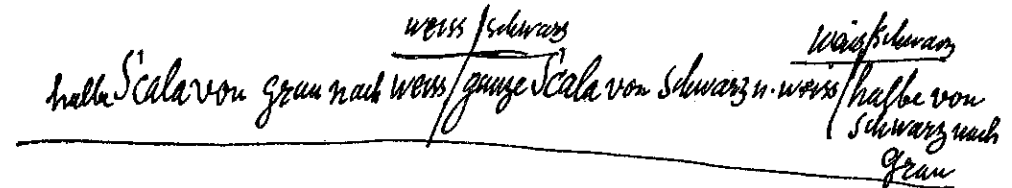


Representation
Black. Scale towards white,
grey, black.
Scale towards white.




Farstellung: Schwarz Seidenmark Weissgrün, Schwarz Seidenmark Weiss

2. Higher articulation combined with structural and individual articulation.¹



individual:	Halbe Leiter	Ganze Leiter	halbe Leiter
structural:	Skalenstufung	Skalenstufung	Skalenstufung

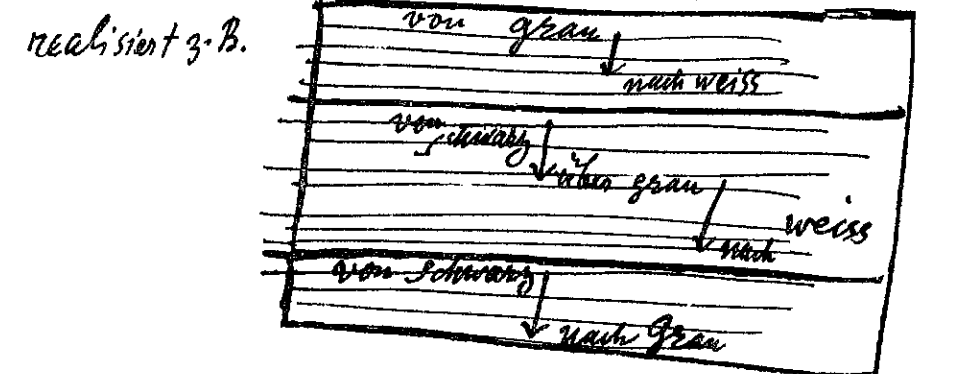
Higher articulation rooted in lower while at the same time rising above lower articulation:

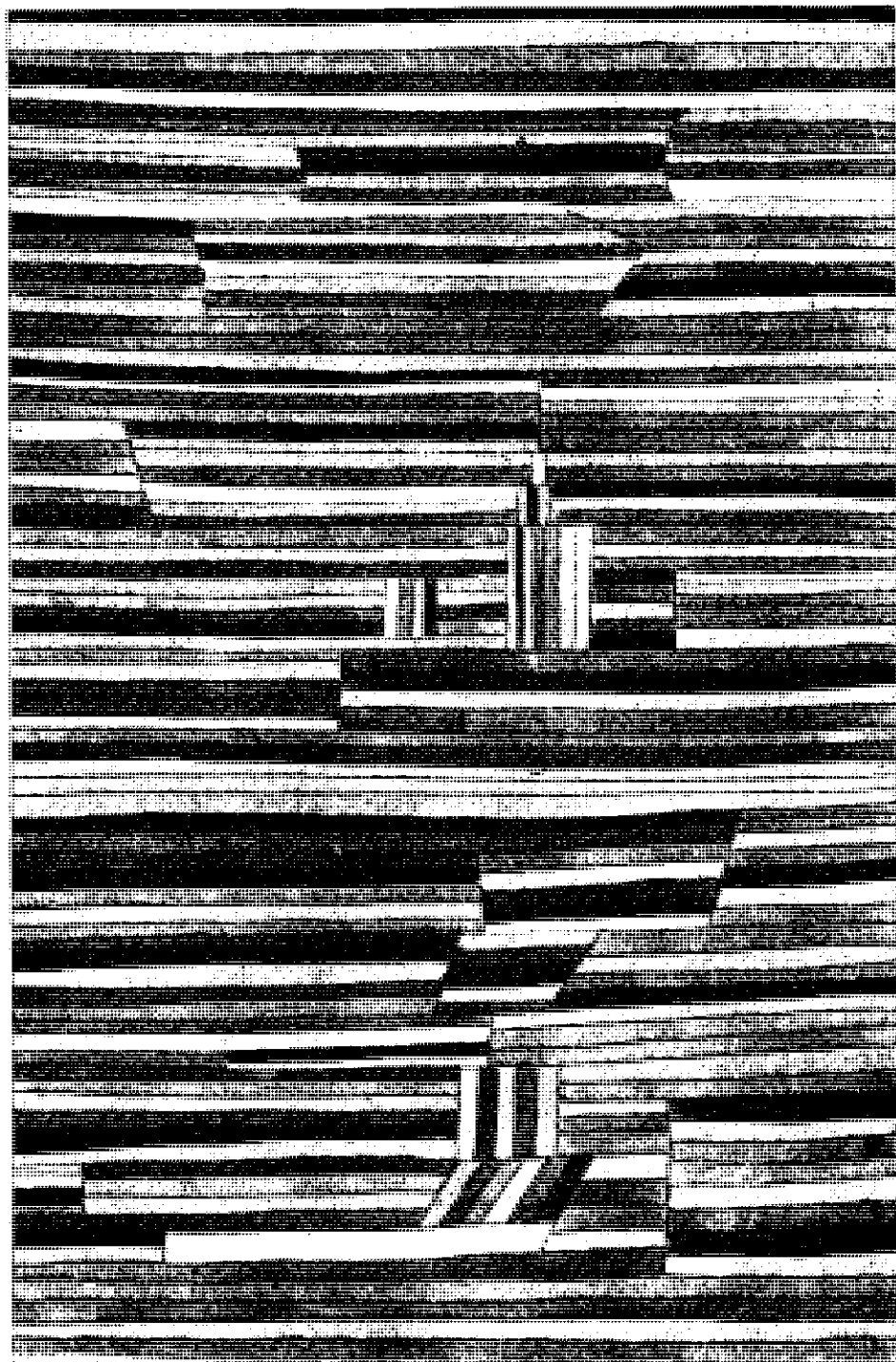
das alte
Bildsymbol: 

from grey
towards white

from black
by way of grey
towards white

from black
towards grey



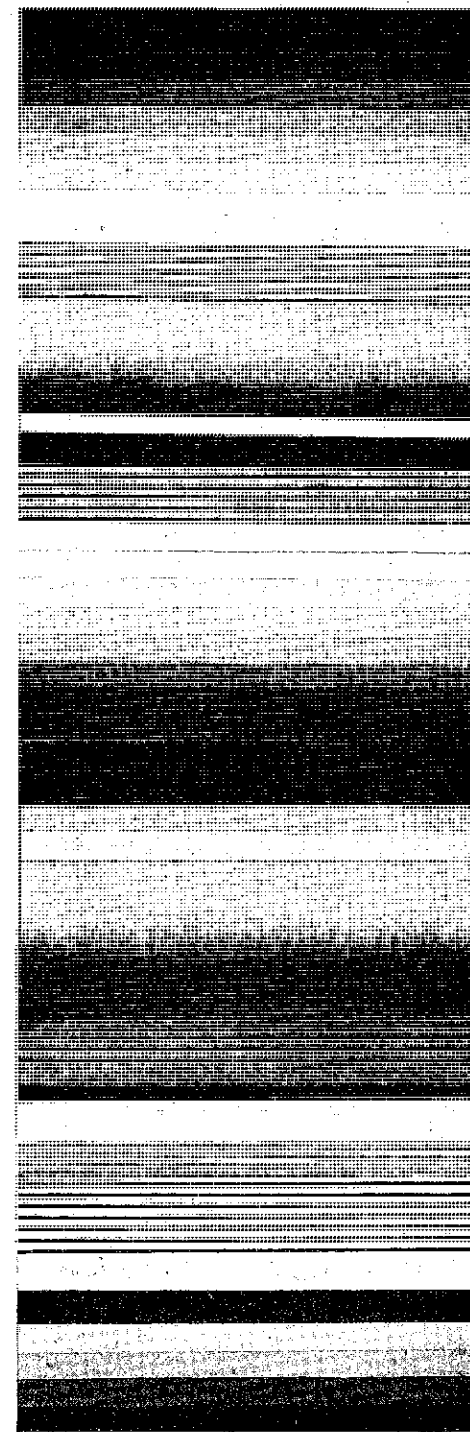


1929/M 5: *Place on the canal*.
Watercolour. 45 x 31.

Figuration example with structural and individual articulation, in part with discontinuous and differential structural articulation.

Cf. form-giving example 3, p.365: 'Higher articulation combined with structural and individual articulation.'
Example 5, p.374: 'With discontinuous and differential structural articulation.'

Figuration example 46/28, p.349: 'Standing, gliding, striding, leaping' in tonal representation.



This figuration example from Klee's lessons is the work of a Bauhaus student and was added by Klee to supplement his own work in portfolio 46/1-30.



1930/e 3: *Rhythmics*.
Oil on jute, 69 x 50.

Changes in tonal values, irrespective of
dimensional movement. 42/20.

Note! Value enhancement towards
the centre slowed by
recalculation from the centre
towards the outside.

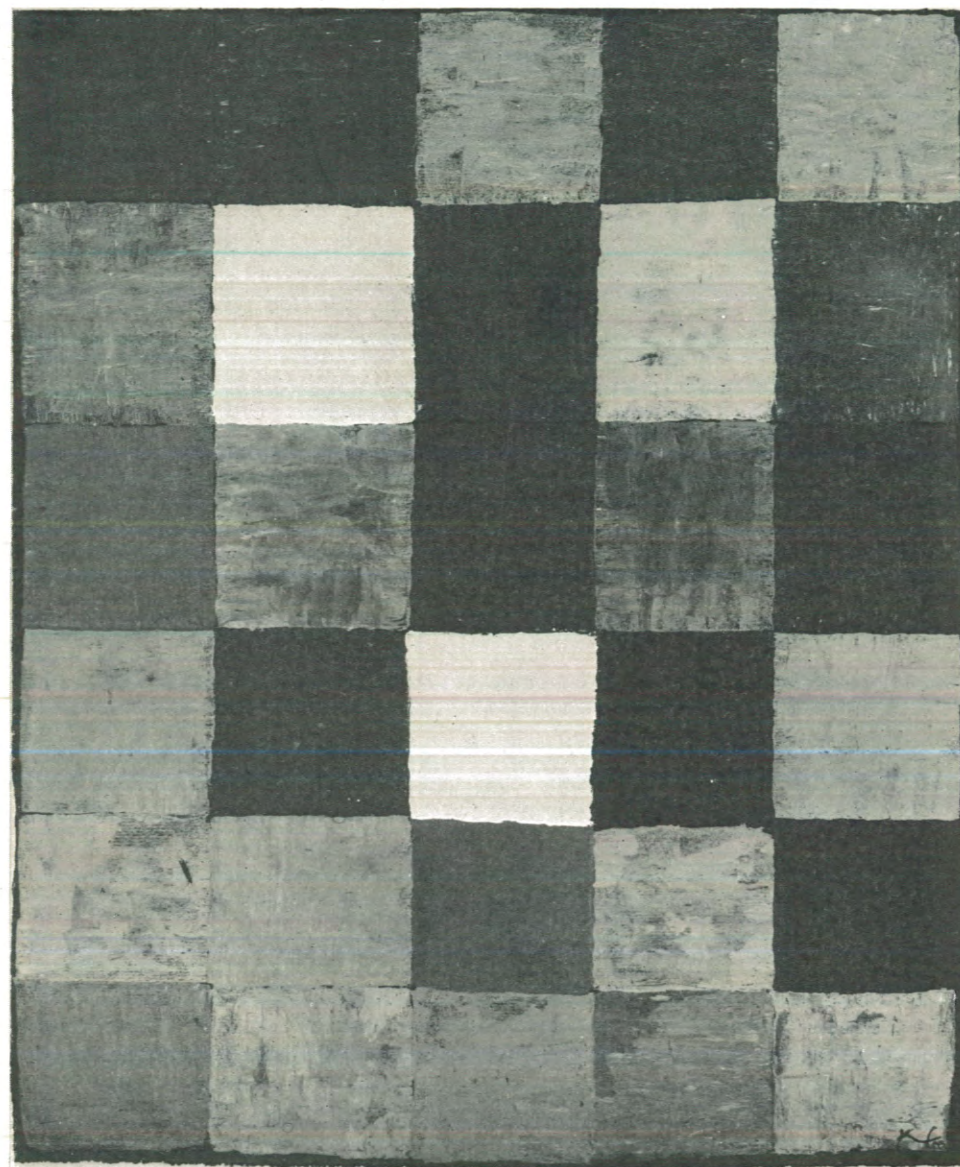
64	32	16	8
near-white	medium-grey	dark grey	rather dark
	(somewhat darker)		grey
32	16	8	4
medium grey	dark grey	rather dark	very deep
		grey	blackish grey
16	8	4	2
dark grey	rather dark	very deep	near-black
	grey	blackish grey	
8	4	2	1
rather dark	very deep	near-black	full-black
grey	blackish grey		
etc.			

Cf. Use of measure and weight, Volume 1, p.220.
Weight structure in two dimensions, Volume 1,
p.223.
Measure, weight and their movements, Volume 1,
p.235.

Succession, or the temporal function of a picture.
Movement as action and form, Volume 1, p.369; also
the following pages: Volume 1, p.371, 'Product Fig.1',
p.375, 'Product Fig.1', both with tonal data.

*heaviest hell-dunkel matter gewichtet
auf Massbewegung*
nach dem Centrum
*W! die Wert Steigerung durch Umrechnung
aus dem Centrum nach aussen abgemessert*

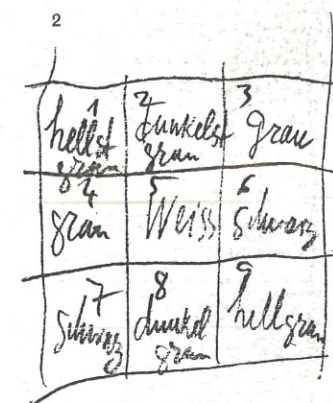
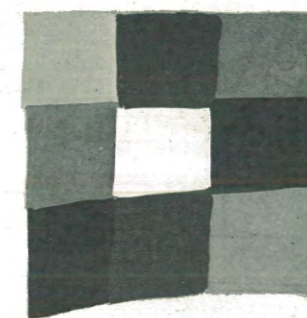
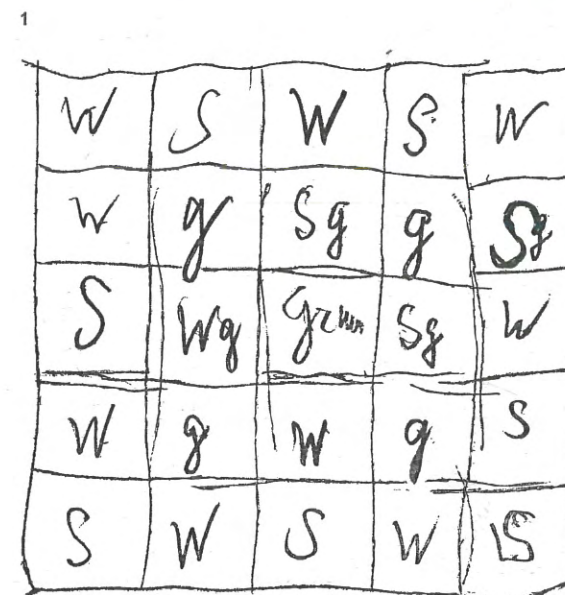
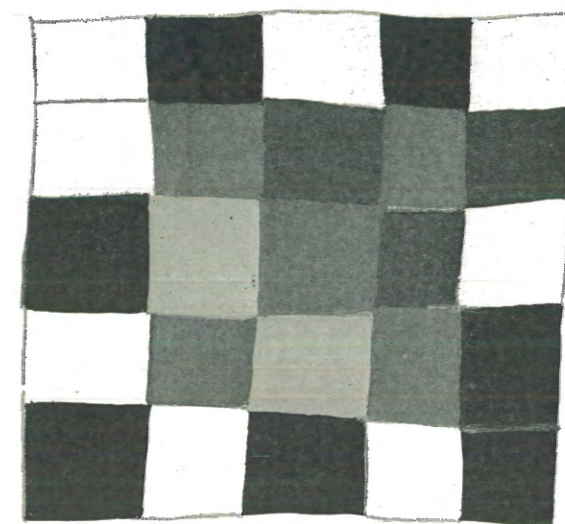
64 fast weiss	32 mittel grau (etwas dunkler)	16 dunkel grau	8 recht dunkles grau	16 dunkel grau	32 mittel grau	64 fast weiss
32 mittel grau	16 dunkel grau	8 recht dunkles grau	4 Schwarzliches Sehr tiefes grau	8 recht dunkles grau	16 dunkel grau	32 mittel grau
16 dunkel grau	8 recht dunkles grau	4 Schwarzliches Sehr tiefes grau	2 fast schwarz	4 Schwarzliches Sehr tiefes grau	8 recht dunkles grau	16 dunkel grau
8 recht dunkles grau	4 Schwarzliches Sehr tiefes grau	2 fast schwarz	1 ganz schwarz	2 fast schwarz	4 Schwarzliches Sehr tiefes grau	8 recht dunkles grau
16 dunkel grau	8 recht dunkles grau	4 Schwarzliches Sehr tiefes grau	2 fast schwarz	4 Schwarzliches Sehr tiefes grau	8 recht dunkles grau	16 dunkel grau
32 mittel grau	16 dunkel grau	8 recht dunkles grau	4 Schwarzliches Sehr tiefes grau	8 recht dunkles grau	16 dunkel grau	32 mittel grau
64 fast weiss	32 mittel grau	16 dunkel grau	8 recht dunkles grau	16 dunkel grau	32 mittel grau	64 fast weiss



1930/R 3: *Colour grid* (on major grey).
Pastel with paste on paper. 47.5 x 34.8.

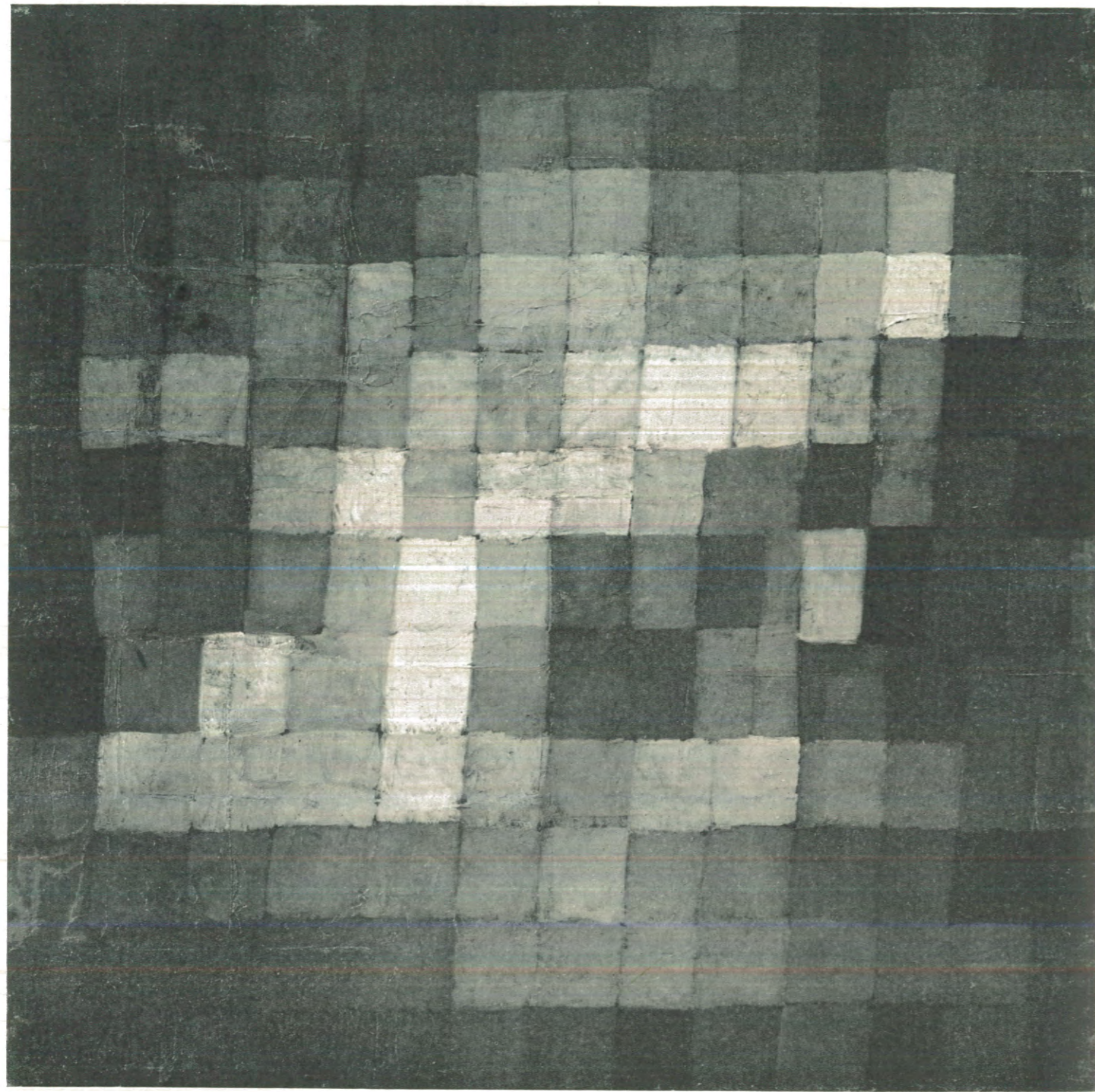
W = White
S = black
G = grey
Sg = dark grey
Wg = light grey

Designs for tonal patterns.
[1] Planar black-white pattern with grey at the centre.
60/101.
[2] Tonal pattern at fixed dimensions (glaze finish).
60/121/1.



Casimir

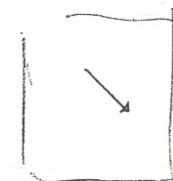
lightest grey	darkest grey	grey
grey	white	black
black	dark grey	light grey



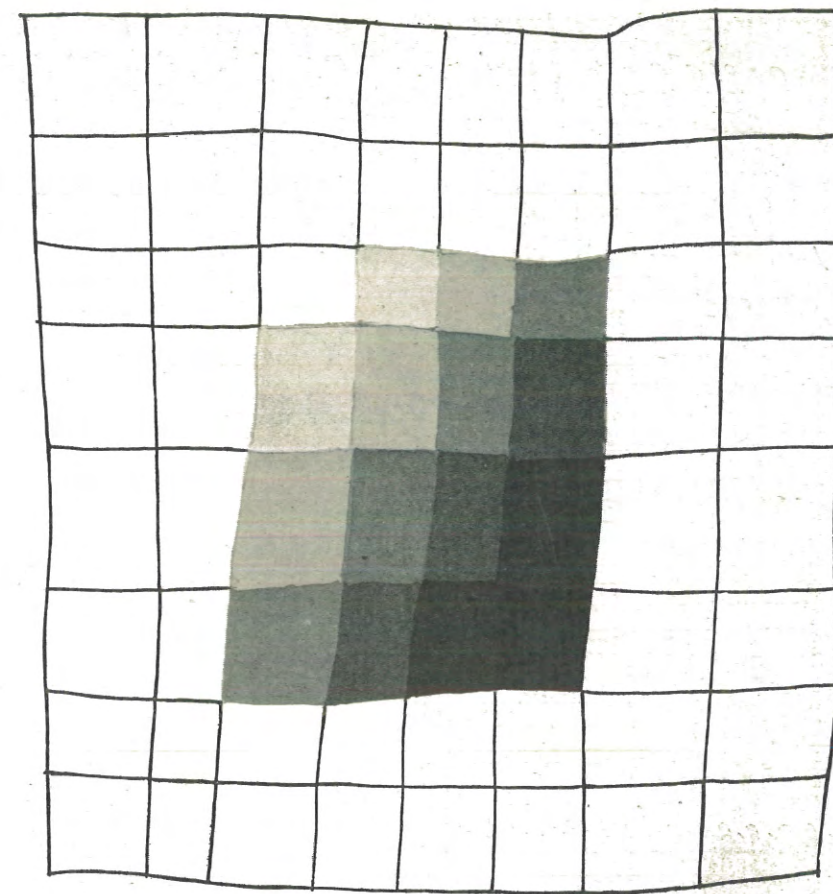
1925/x 6: *Ancient chord*.
Oil on cardboard. 38 x 35.

Unidirectional movement. 60/87.
8 x 8 = 64.

- 1 w = white
- 2 wgr = lightest grey
- 3 hgr = light grey
- 4 mgr = medium grey
- 5 dgr = dark grey
- 6 sgr = darkest grey
- 7 sch = black



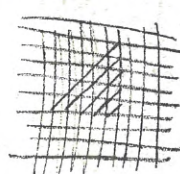
- 1 w = white
- 2 wgr = lightest grey
- 3 hgr = light grey
- 4 mgr = medium grey
- 5 dgr = dark grey
- 6 sgr = darkest grey
- 7 sch = black

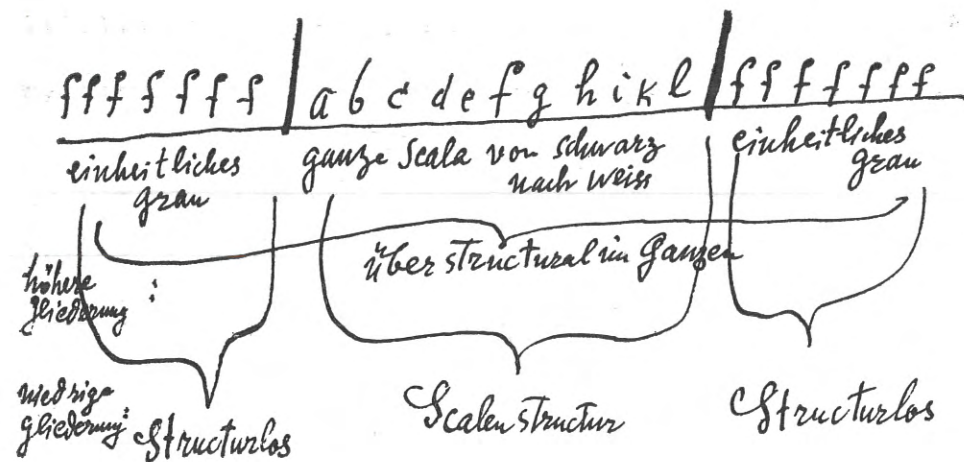


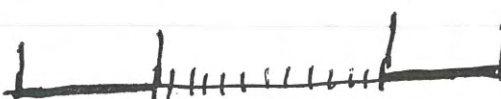
Unidirectional Bewegung

8 x 8 = 64

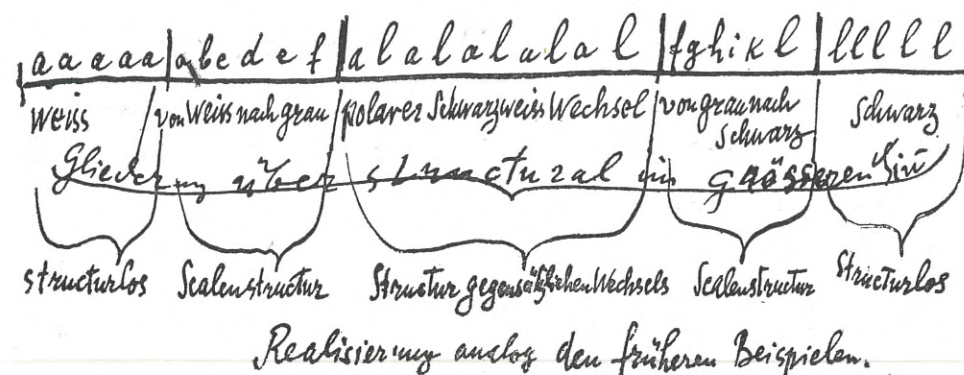
w	w	w	w	w	w	w	w
w	w	w	w	w	w	w	w
w	w	w	w	w	w	w	w
w	w	w	w	w	w	w	w
w	w	w	w	w	w	w	w
w	w	w	w	w	w	w	w
w	w	w	w	w	w	w	w
w	w	w	w	w	w	w	w





Symbol: 

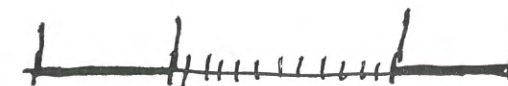
Realisierung analog dem dritten Beispiel.



4. New case with discontinuous structural articulation.

4.	ffffffffff	a b c d e f g h i k l	ffffffffff
	uniform grey	whole scale from black to white	uniform grey
higher articulation		on the whole superstructural	
low articulation	unstructured	scale structure	unstructured

symbol:
realisation analogous
to the third example.

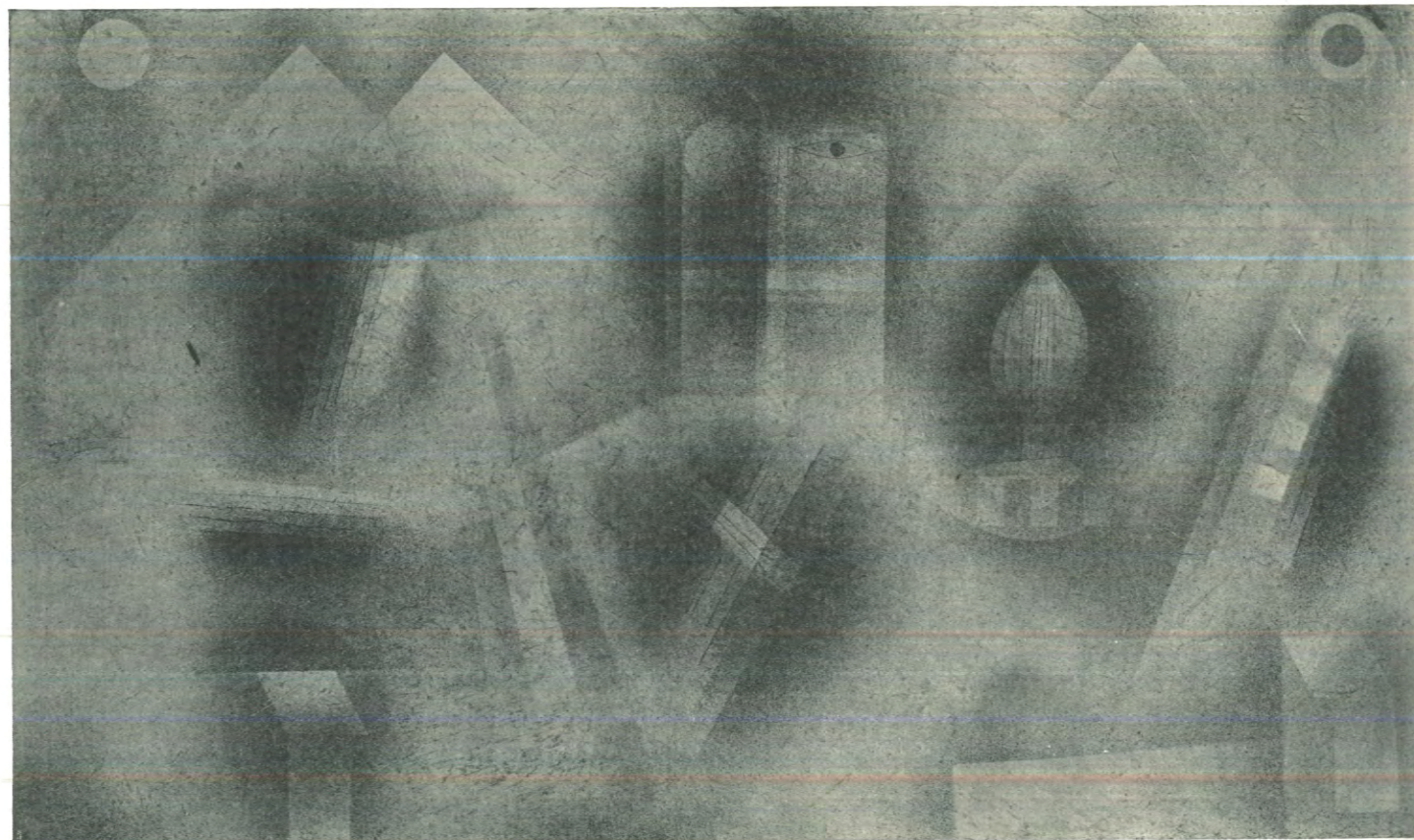


5. With discontinuous and differential structural articulation.

5. a a a a a	a b c d e f	a l a l a l a l a l	f g h i k l	l l l l l
white	from white to grey	polar black-white alternation	from grey to black	black
articulation superstructural in the larger sense				
unstructured	scale structure	contrast alternation structure	scale structure	unstructured

Realisation analogous to the earlier examples.

The legends are transcribed in print on the opposite page.



Exercise:
Equilibrium through tonality.
Two pertinent instances:
8/26a.

a) staccato ego staccato

b) legato
 $\frac{1}{2}$ scale from black to white
white ego
 $\frac{1}{2}$ scale from black to white
of unemphasised extraordinary character

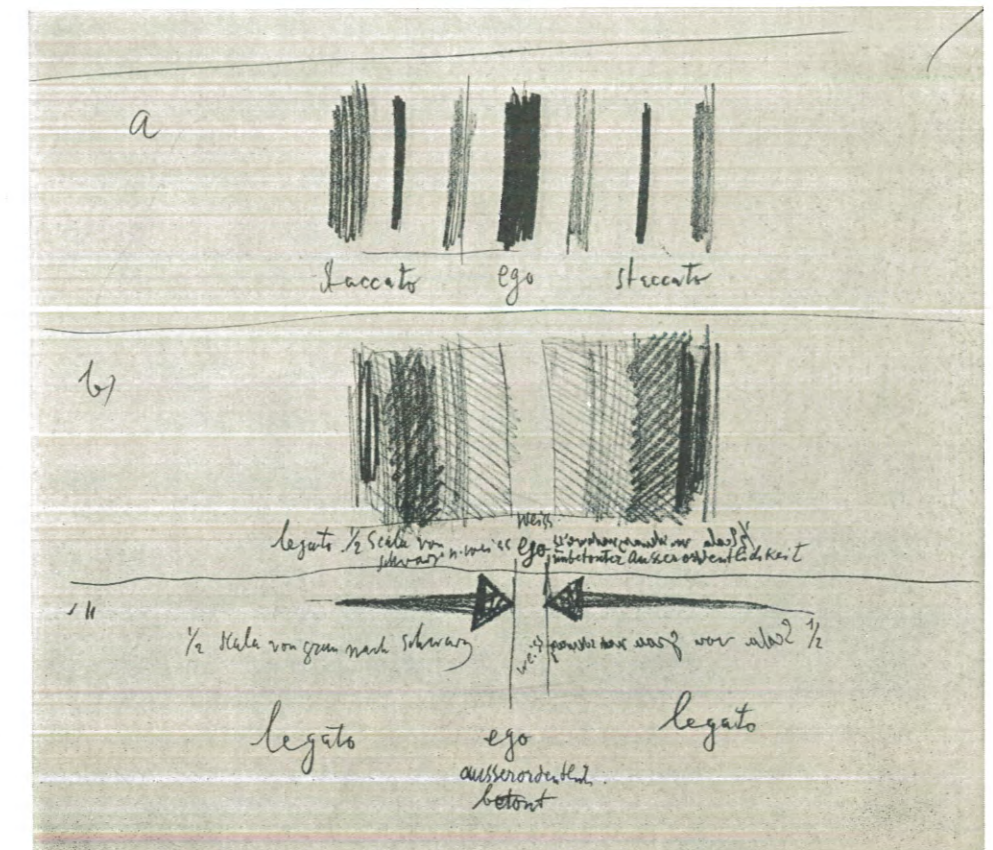
$\frac{1}{2}$ scale from grey to black
white
 $\frac{1}{2}$ scale from grey to black

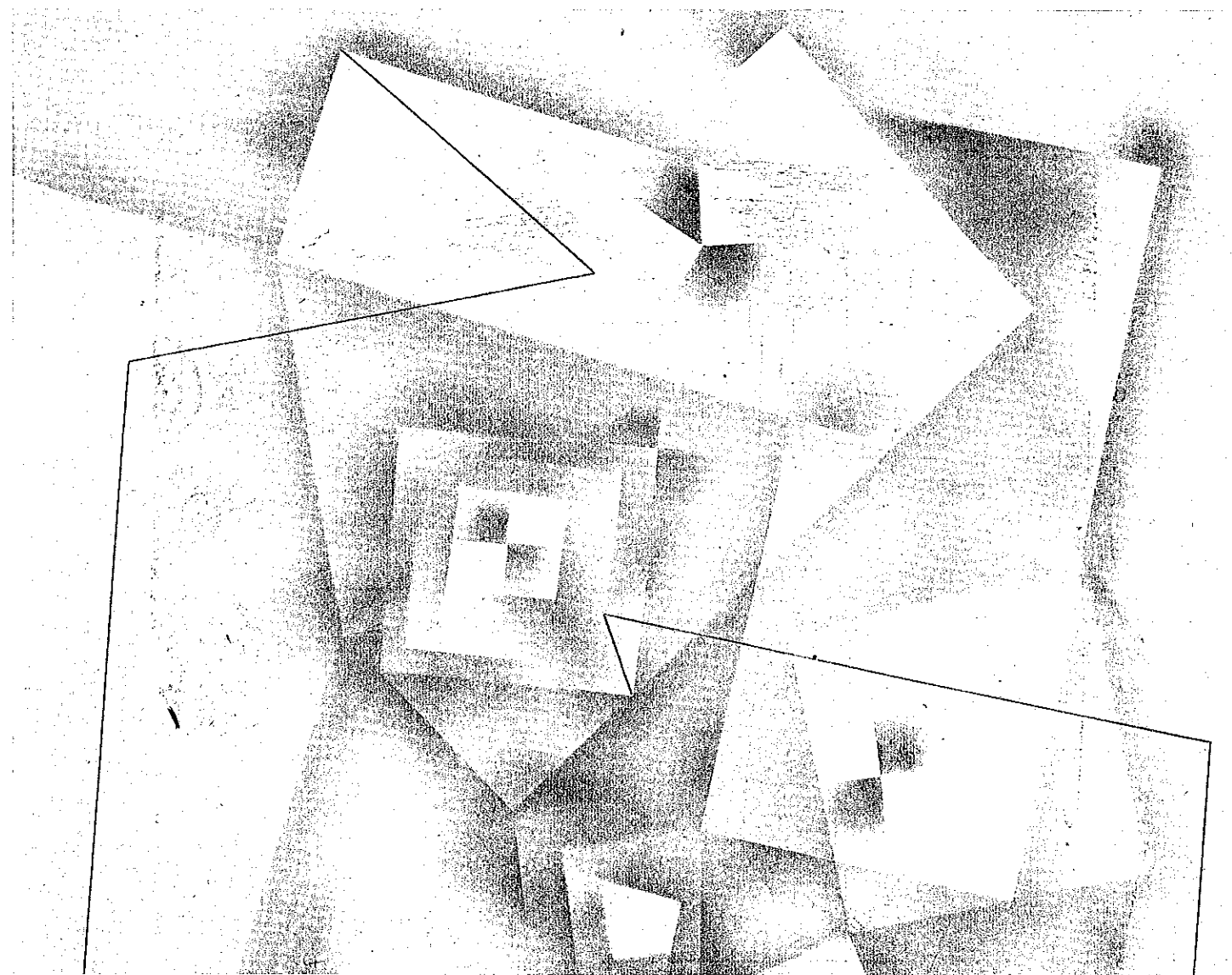
legato
ego
extraordinary
emphasised
legato

In music, accordingly, the quarter-tone scale or the 'chromatic' half-tone scale would be closer to natural differences in pitch than the more artificial major and minor scales. If we had but time to deal with this aspect at greater length, this casual aspect might afford special insight into the sphere of musical style.

But let us now stick to our subject and consider the various cases of exact articulation. We may at once establish with certainty that scales, whether divided into small intervals or large, of equal size or sub-divided, all belong to the sphere of structural articulation.

a White is the standard and remains the standard.	Contrast: black	
b White does not remain the standard.	Contrast: white	
In a) the units do not touch.	Isolated forces,	staccato
In b) the units touch	Linked forces,	legato





1930/s 8: Elevation of a castle.
Stencil drawing. 39 x 49.

Examples. 60/16a.

Direct major contrast:

*Beispiel
Unvermittelt/gegenüber:*
grau grau grau | schwarz | weiss | grau grau grau

Indirect major contrast:

vermittelt/gegenüber:
grau grau | schwarz | grau | weiss | grau grau

Direct minor contrast:

unverm. Nebengegensatz:
grau grau | hellgrau | dunkelgrau | grau grau

Indirect minor contrast:

vermittelter Nebengegensatz:
grau grau | hellgrau | grau | dunkelgrau | grau grau

Upper minor contrast (direct):

oberer Nebengegensatz: (unvermittelt)
hellgrau hellgrau | weiss/grau | hellgrau hellgrau

Upper minor contrast (indirect):

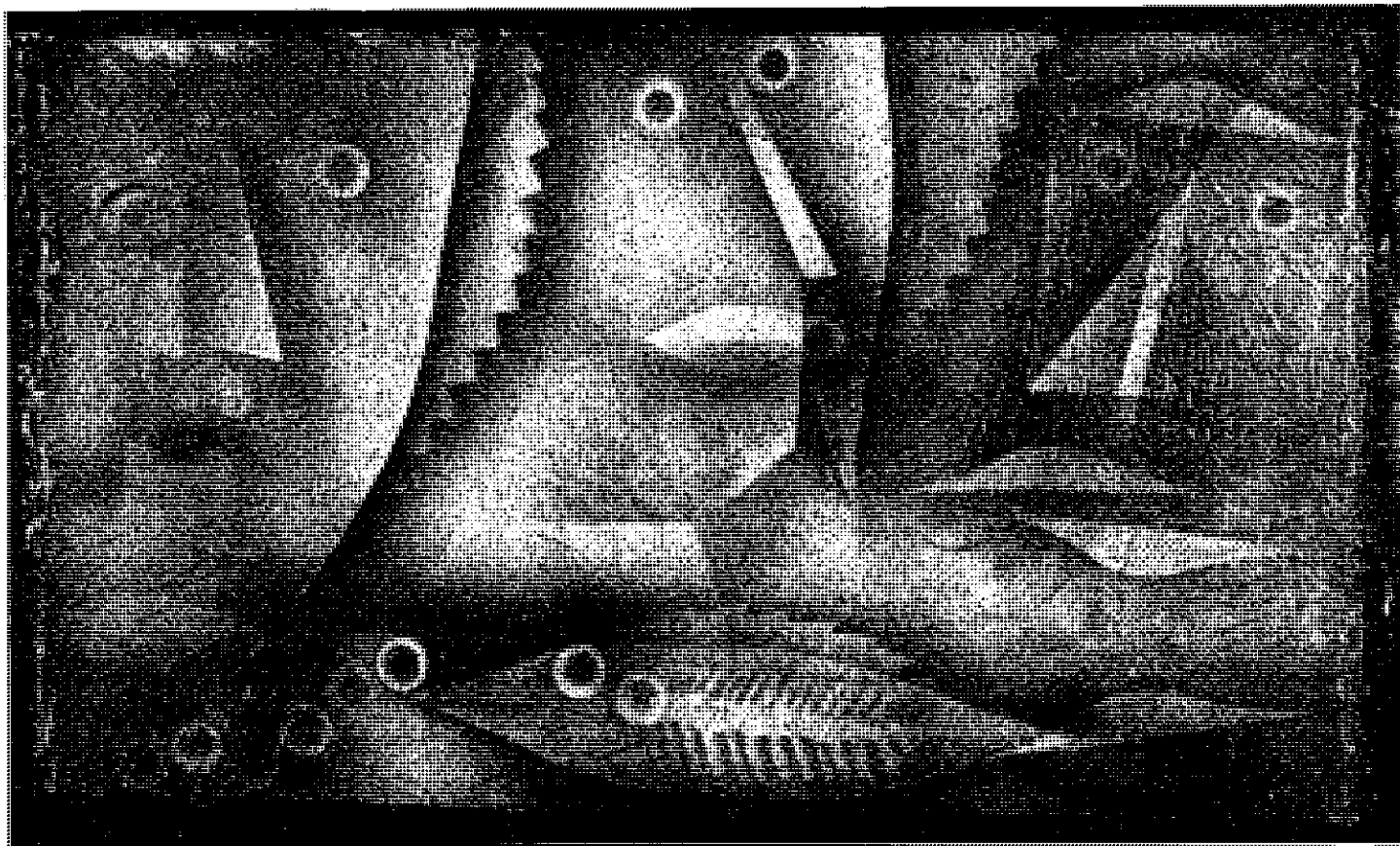
(vermittelt):
hellgrau hellgrau | weiss | hellgrau | grau | hellgrau hellgrau

Lower minor contrast (direct):

*unterer Nebengegensatz
unvermittelt:*
dunkelgrau dunkelgrau | grau | schwarz | hellgrau hellgrau

Lower minor contrast (indirect):

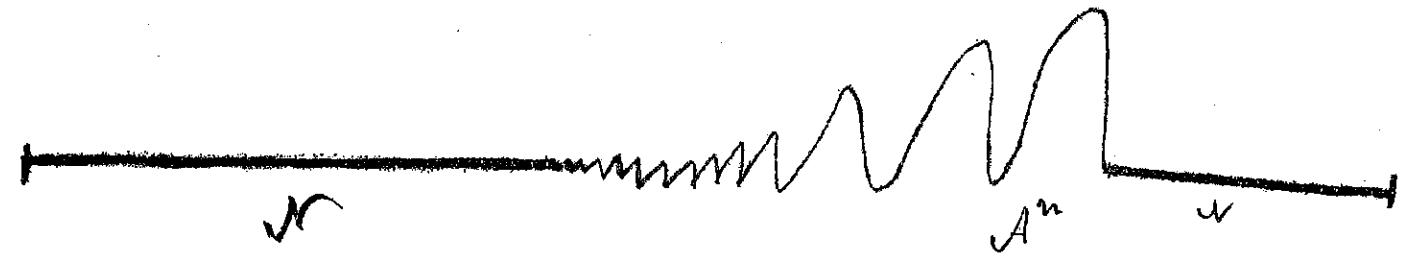
vermittelt:
dunkelgrau hellgrau | (grau/dunkelgrau) schwarz | hellgrau dunkelgrau



1927/k 1: *Fish people*.
Oil and tempera on plaster and oil-grounded canvas
on cardboard on wood. 32 x 55.

† Normal and abnormal movement:
Movement is measureable by the standard of
immobility. Alternation in the tonal sphere from
structurelessness to articulate structure. 60/98.

Normal and abnormal¹



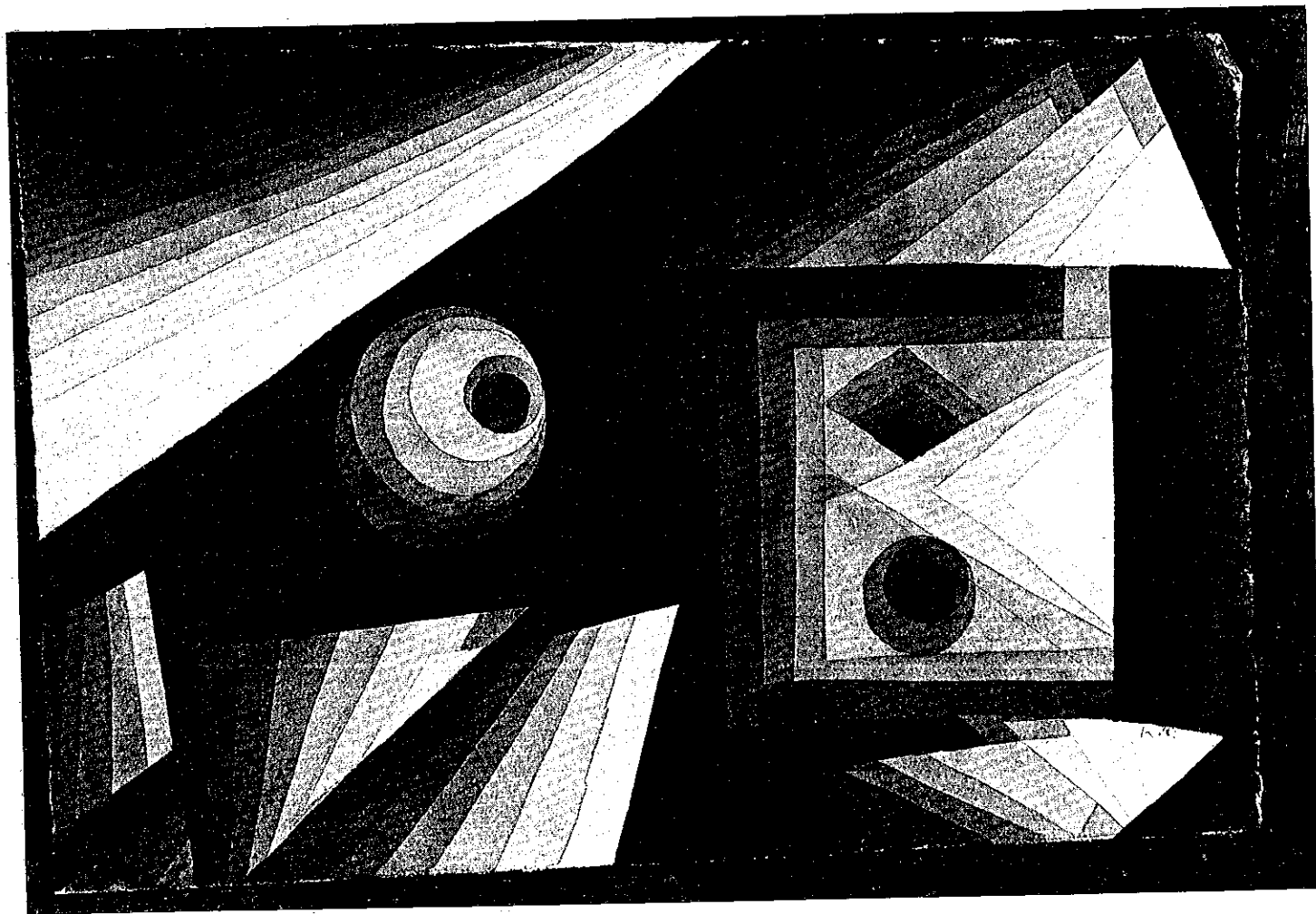
One might further include the element of natural movement in the combination, which
would add to the concepts already present the subarticulate concept of unstructured
movement and which would also enrich individual articulation correspondingly.

6. Unstructured solidity,
unstructured fluidity,²
ordinary structures,
scale structures.



Please draw no wrong conclusions from the symmetrical arrangement of these schemes –
as though one could not manage very well without them. The reverse would be better –
such strict symmetry should be avoided, precisely because it is rigid in character. In gen-
eral, these examples have only specific (theoretical) meaning, serving to clarify insight
by way of orderly orientation. They touch upon and open up many elements of the creative
armamentarium, but that does not mean that they breathe that deeper life that stems only
from inner inspiration.

Yet we must deal with them, aware that we are not getting to the heart of the matter, merely
remaining at the level of organising our pictorial means, while touching the level of
articulation.



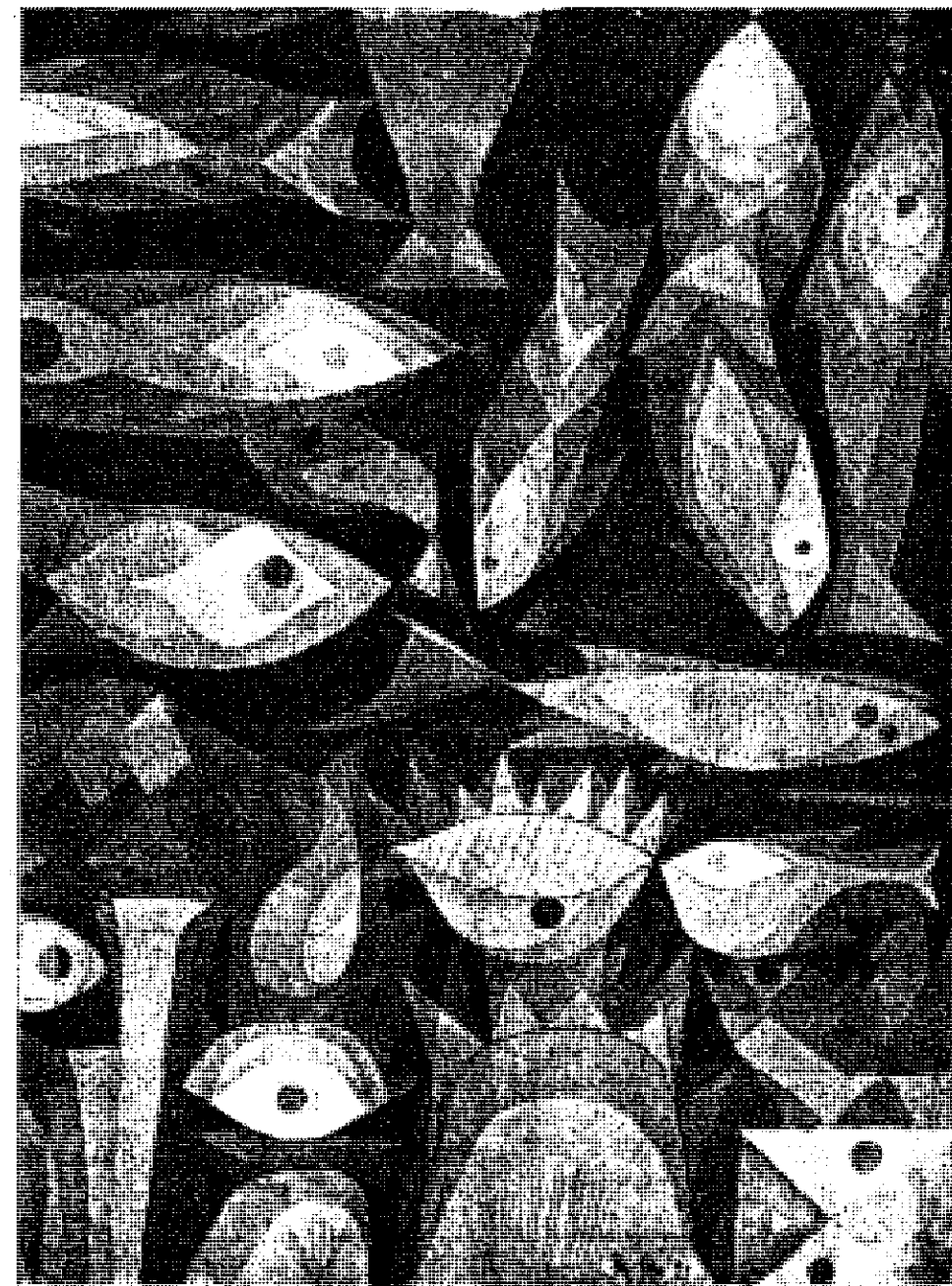
1921/89: *Red nuances*.
Watercolour, 21 x 31.

Basic distinction:

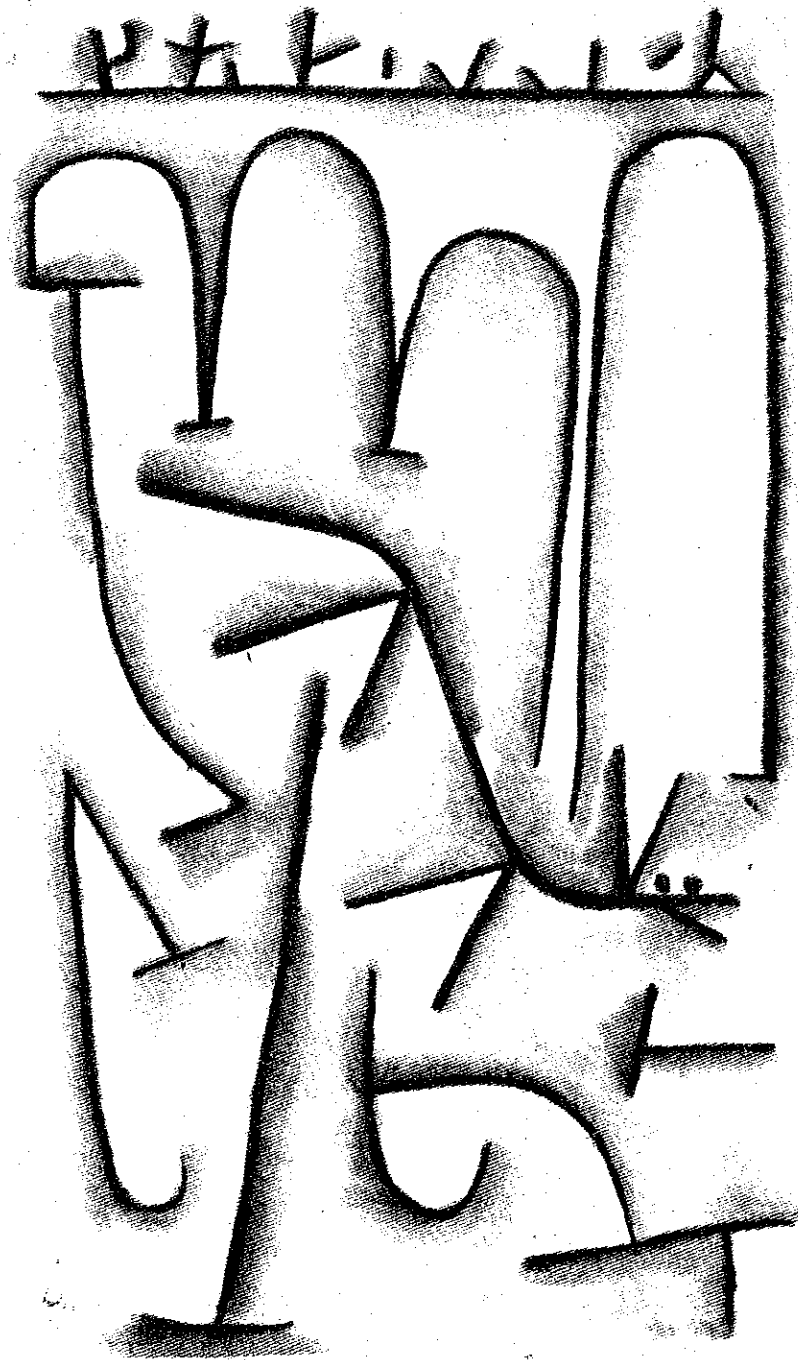
1. All scales are structural articulations (dividual and repeatable).
2. Character of natural articulation: 'Unstructured movement' as part of an individual articulation.

The juxtaposition of the two illustrations shows the differences by full-fledged examples.
1921/89: *Red nuances*. Watercolour:
Use of tonal scale with structural articulation.

1921: *Fish*. Watercolour:
Natural articulation as part of individual higher figuration.
Rigid tonal scale articulation is subordinate to the higher individual figuration of the work.
'Unstructured movement' may be understood in simple terms as moving natural form articulation, with tonal scale articulation elements partly included.



1921/unnumbered: *Fish*.
Watercolour, 21.7 x 18.
Cf. note in appendix.

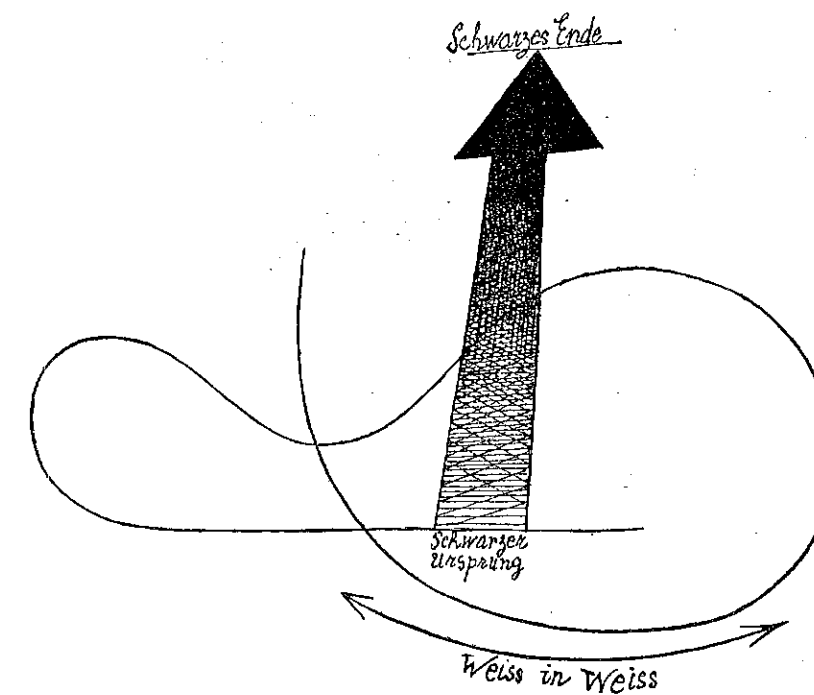


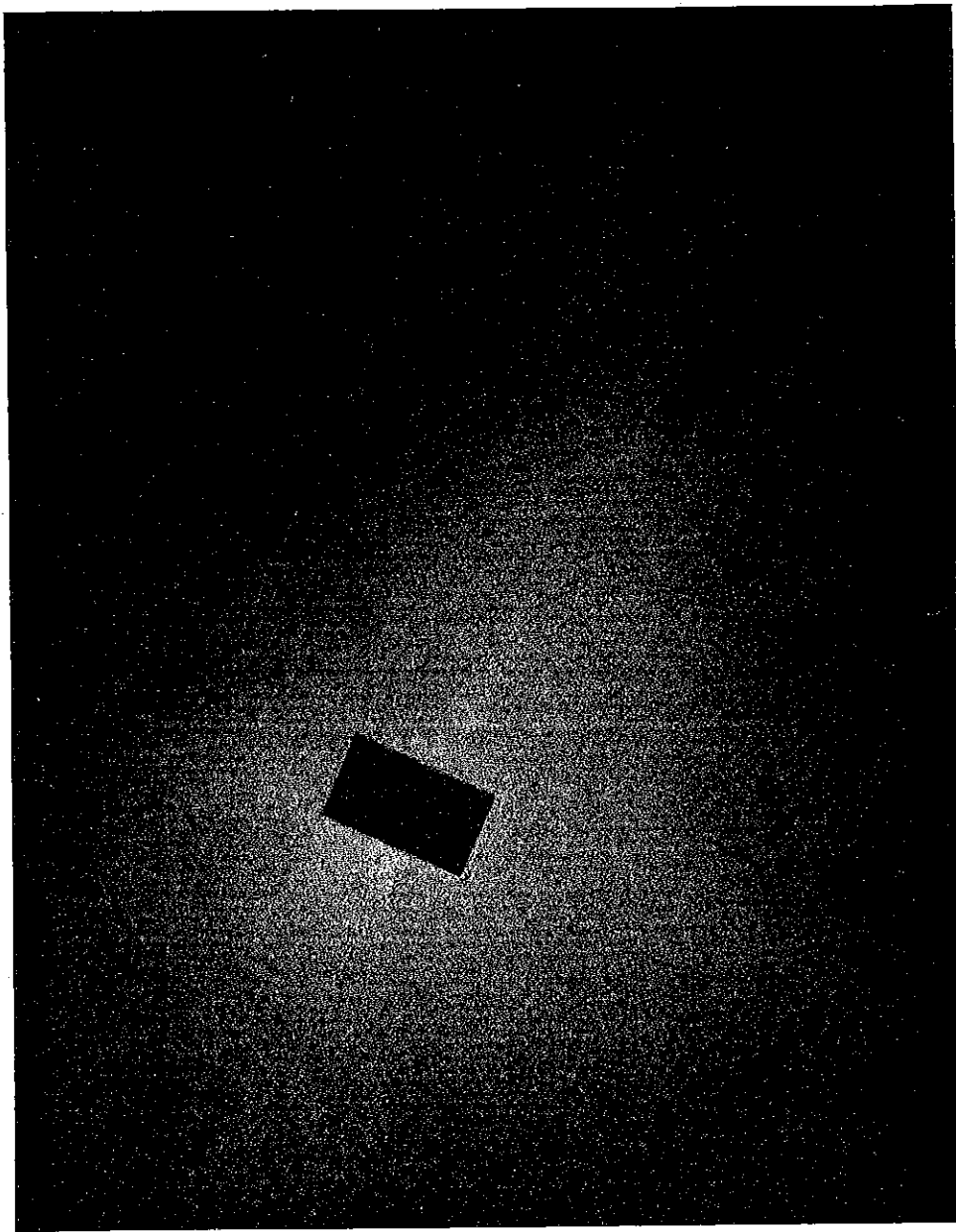
1937/M 17: *Beneath the viaduct.*
Charcoal on cotton, 52 x 30.5.

In all this, the level of the elementary creative process must be kept tacitly in mind. From that point of view, I should be playing fast and loose with all the gradations from black to white only at the cost of violating the canon of inner necessity. What I should really be doing in this respect is to differentiate volume and alternation of tonal nuances from case to case.

Let me give a few further practical hints along these lines. Every viable problem solution in the sphere of tonality is in some measure linked to the two contrasting poles, black and white. Even when they are not directly involved but merely allow their forces to feed into the sections relating to them, they invest the interplay of these forces within the black-and-white scale with a feeling of tension.

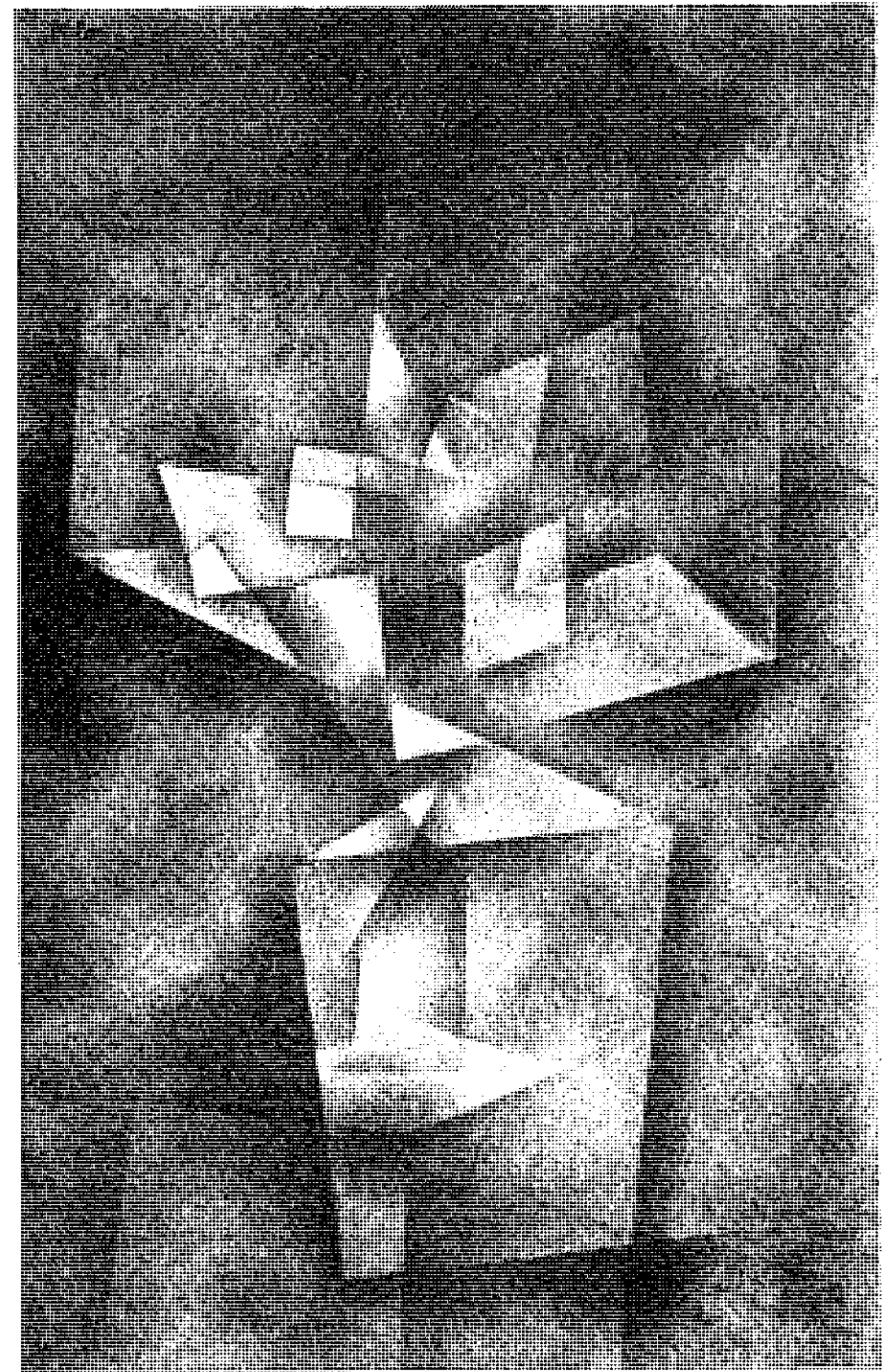
'Shaping the black arrow.
'It consists in enhanced energy development from the given or existential or present white in the direction of the incipiently active or impending black. Why not the other way round?
'Answer: The accent lies on the minor particularity as against the major generality. The latter is existential and familiar in effect, the former unwonted and active. And the arrow flies in the direction of action.
'This extraordinary burgeoning of force (in the productive sense) or of energy consumption (in the negative sense) overrides everything else in respect of the direction of movement.'



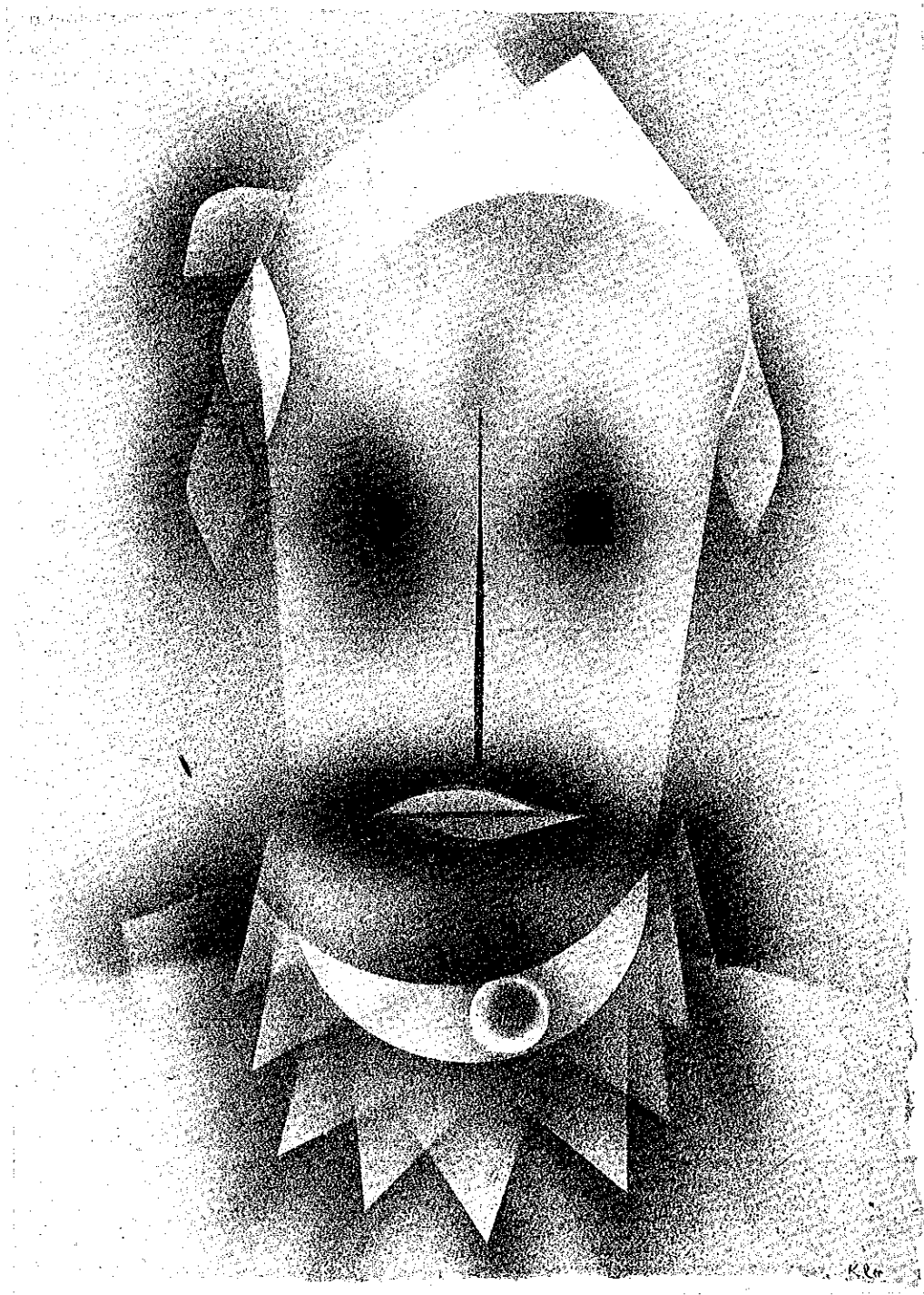


Figuration example 46/19. Tempera with air brush.
A black rectangle is endotopically treated as a major
generality against the given existential black.
Cf. Volume 1, p.52.

One may speak of a black-and-white alternation
effect (active-passive dual balance).
Cf. 1930/*Polyphonic setting for white*, p.398 (full-page
illustration, Volume 1, p.374) as well as 1932/
Helical flowers I, p.398 (illustration, Volume 1,
p.376).



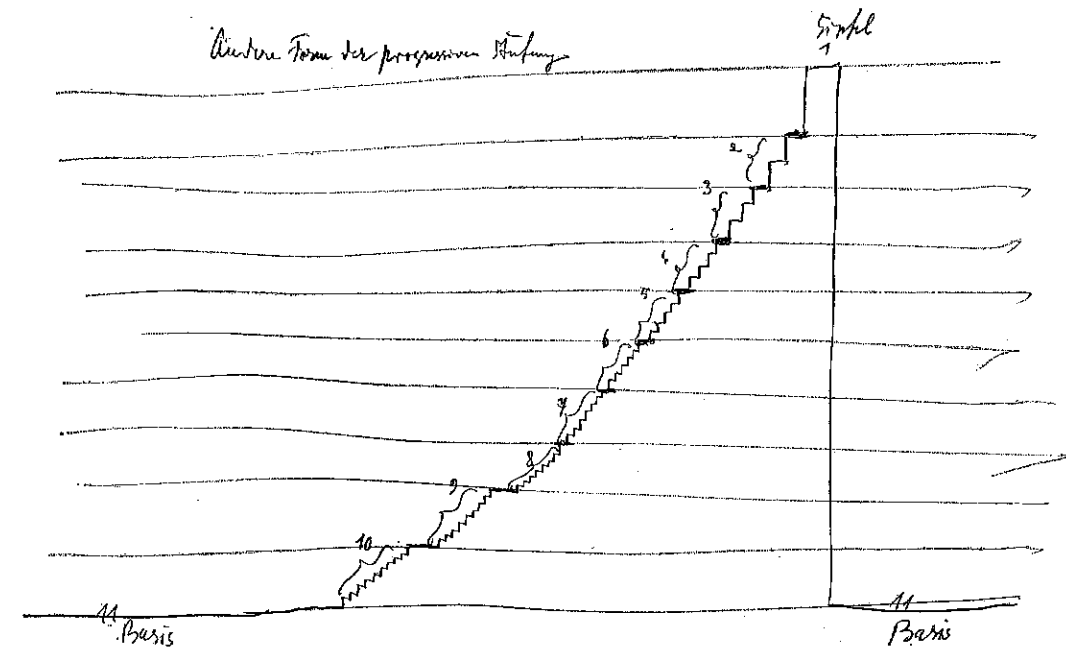
1930/B 9: *Flower vase in three dimensions*.
Oil on note paper. 21 x 33.8.



1925/w 3: *Monsieur Perlenschwein*.
Watercolour with air brush. 51.5 x 35.5.

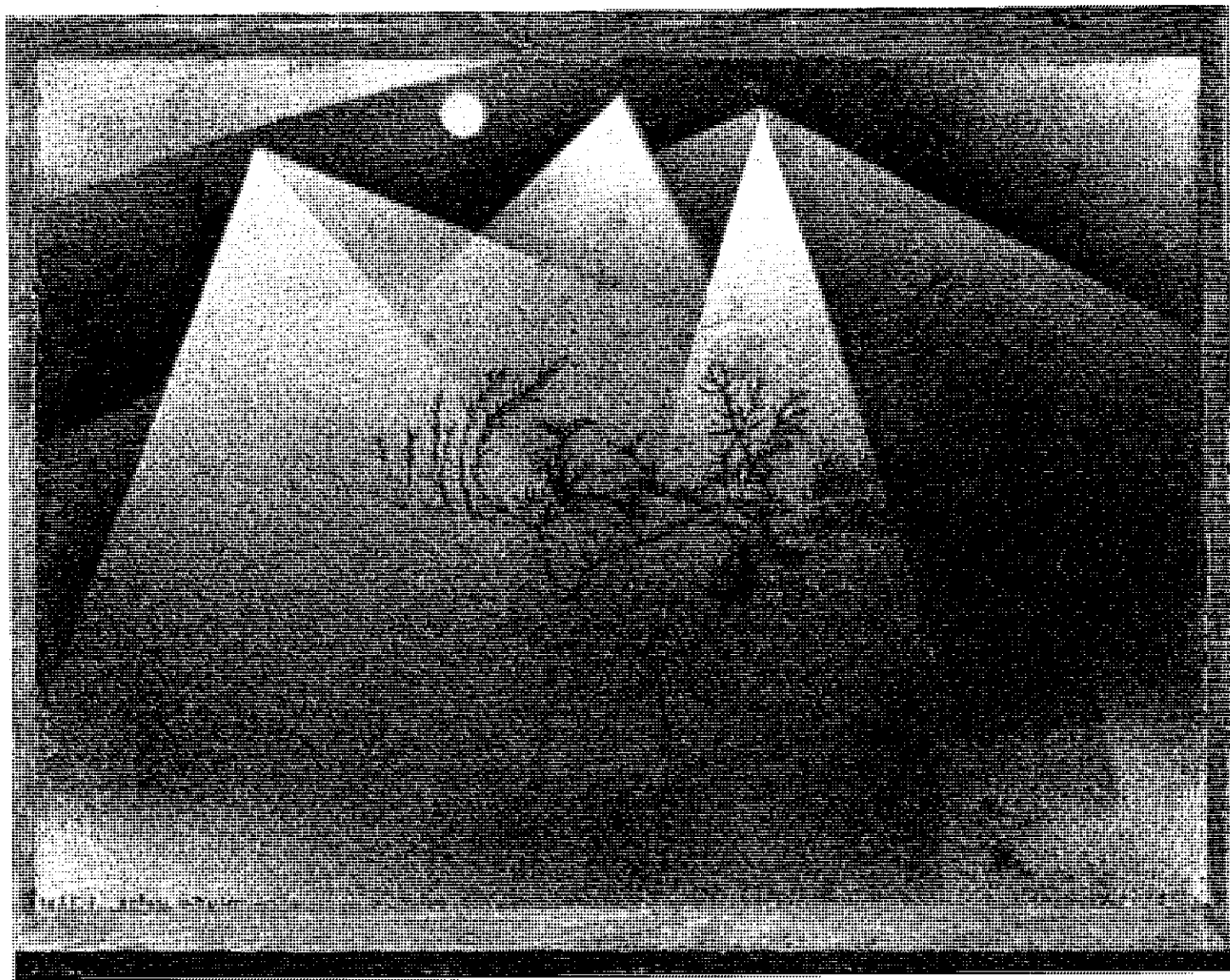
60/91.
Another form of progressive
gradation.
Peak 1

Base 11



The character of an action is determined by the degree of black-and-white participation whether direct or vicarious, and by the various intermediate degrees of direct or indirect participation in the whole of the to and fro. This character ranges from a quiet wafting rise and fall, guided by tenuous threads from the poles – a thoroughly tranquil state of affairs, so to speak – all the way to open struggle, in which the poles leap in in person.

A wide range from pole to pole invests an action with deep inspiration and expiration capable of being modified all the way to hard-breathing wrestling. A narrow range throttles down the breath to a mere shallow *sotto voce*. It is reduced to a mere whisper roundabout the grey. Or one rises above this level to the violins – or sinks below it to the cellos. For those who are unfamiliar with musical terminology, I can put it differently.



1925/3: Mountains in winter.
Watercolour with air brush. 28 x 37.

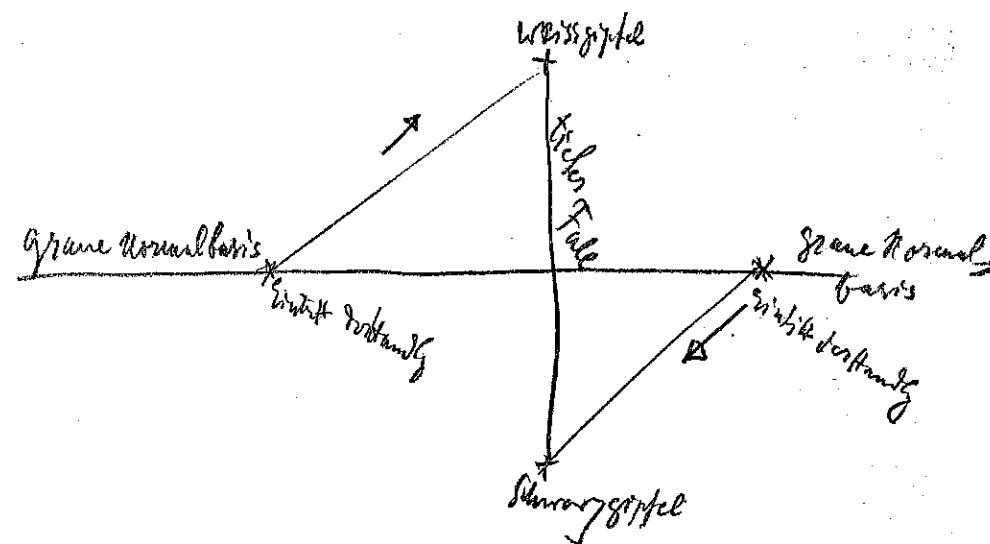
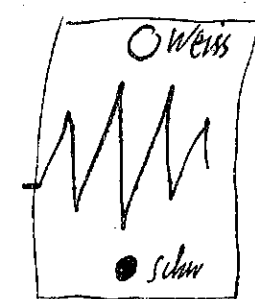
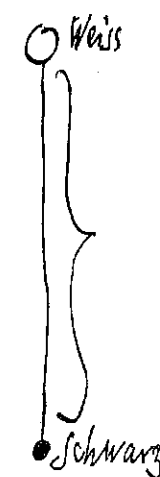
White peak

Deep fall
Normal grey base
Action commences

Black peak
Figuration example 60/45.

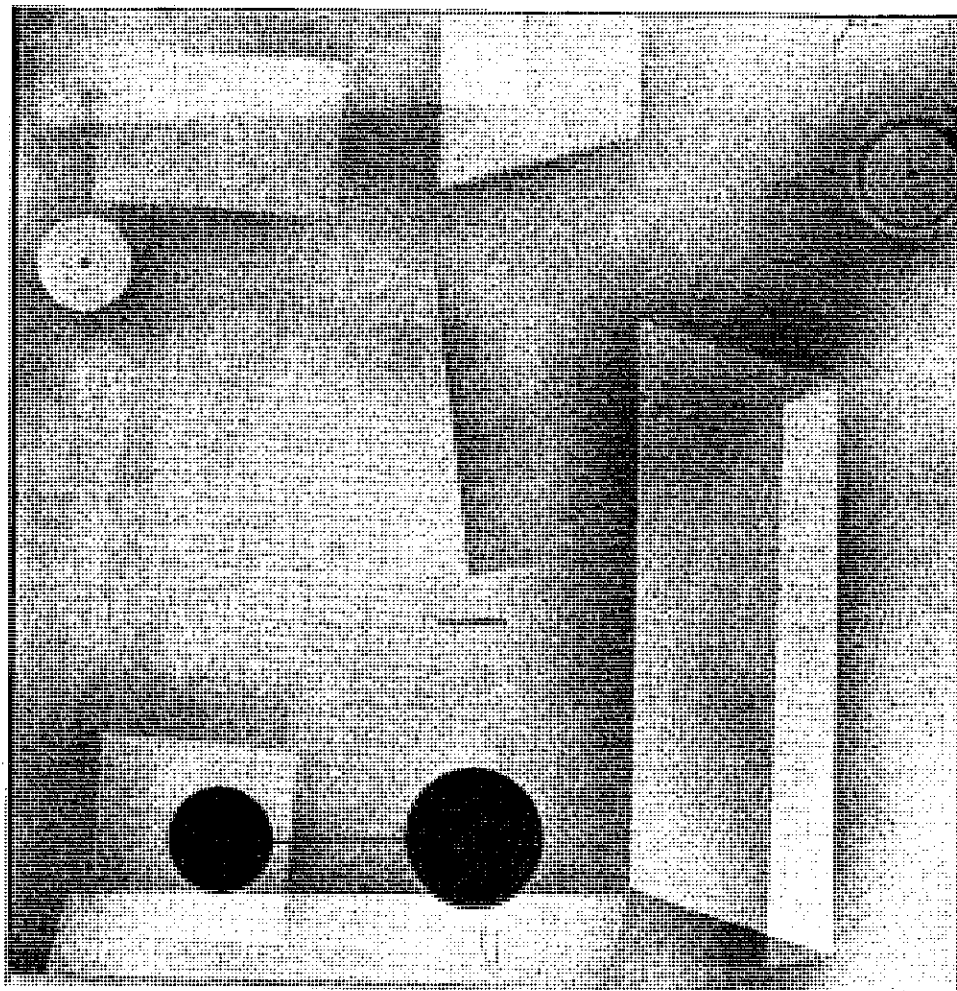
A. Wide range,
the black low and white high
visibly intervening in the action.
This wide swing of the pendulum
from black to white
lends force to the action.

A. Grosse Spanweite

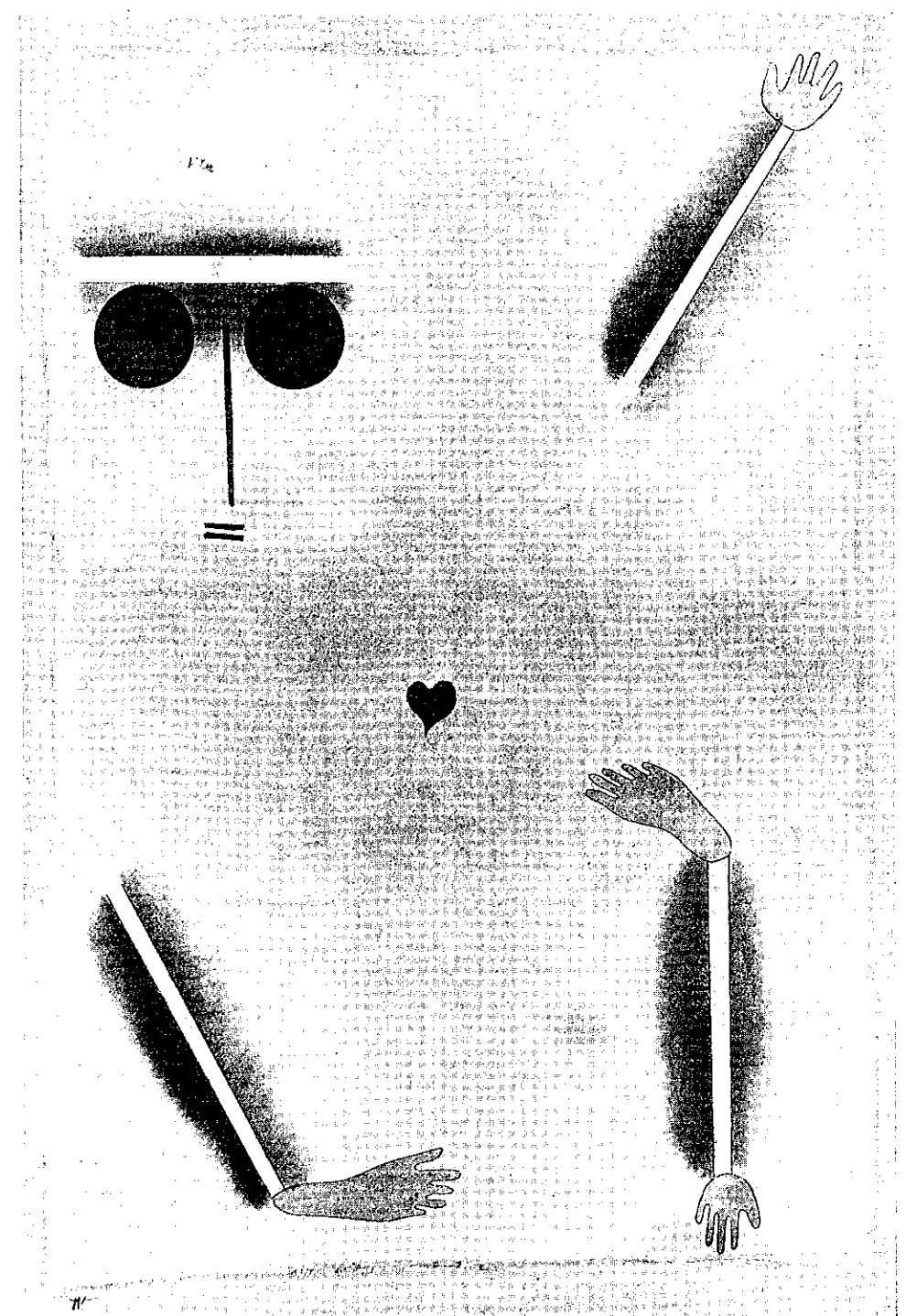


Within a wide range, the dramatic
character moves in steps from remote
control by the poles

all the way to open
struggle, the sharp
clash of extremes.



1934/T 20: *The invention*.
Watercolour and wax pigment on cotton on wood.
50.5 x 50.5.



1930/s 4: *Has head, hand, foot and heart*.
Watercolour and pen-and-ink on cotton. 41.5 x 29.



1939/CD 12: *Diagram of a fight*.
Grease crayon on black-grounded paper.
27.5 x 27.5.

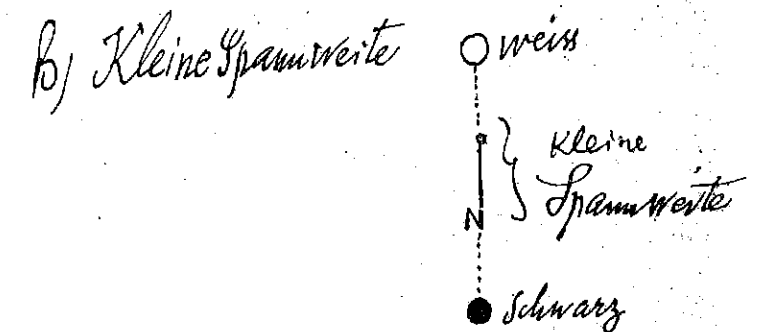
'This character ranges from a quiet wafting rise and fall, guided by tenuous threads from the poles – a thoroughly tranquil state of affairs, so to speak – all the way to open struggle, in which the poles leap in in person.'

B. Narrow range

White

Narrow range
(round about grey)

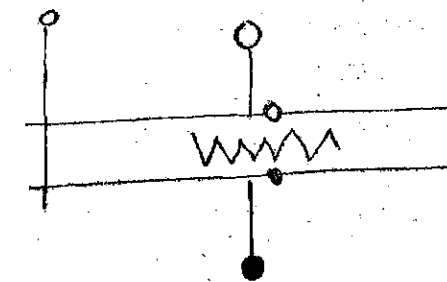
Black

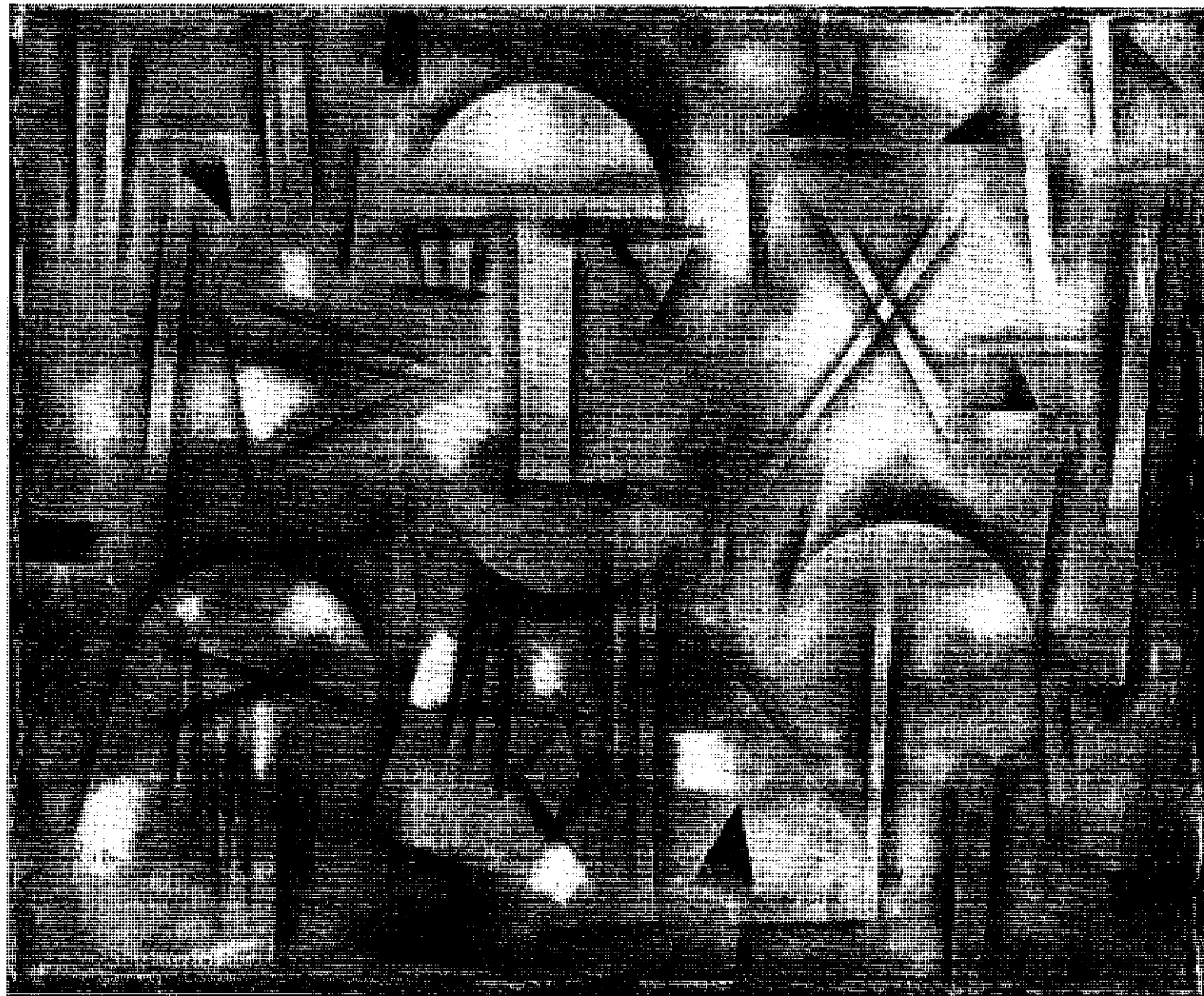


Struggle within
a narrow range.



Reserved action
within
a narrow range.





1924/15: *Physiognomic crystallisation*.
Oil on muslin on cardboard, 41.8 x 51.4.

Black does not appear on the scene, allowing itself to be represented by grey. Here again, there are different types of action between grey and white.

White allows itself to be represented by grey.

White

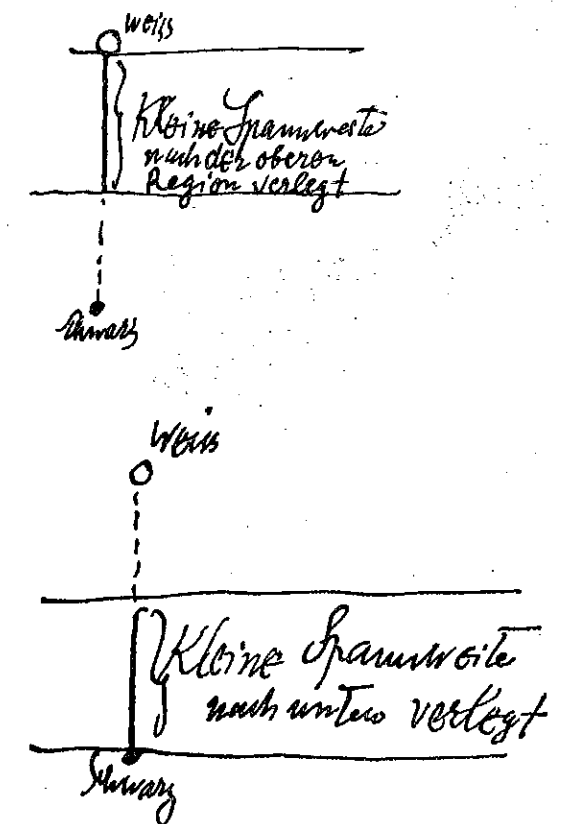
Narrow range,
displaced towards the upper region.

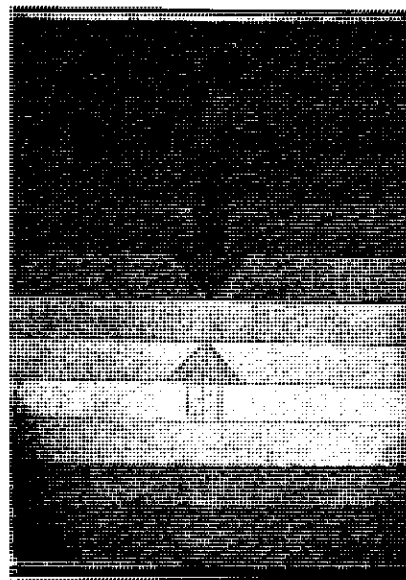
Black

White

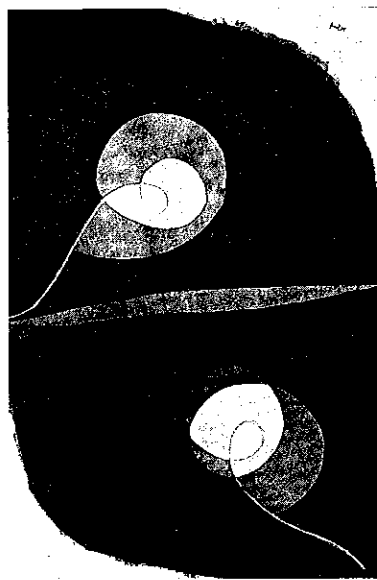
Narrow range,
displaced downwards.

Black

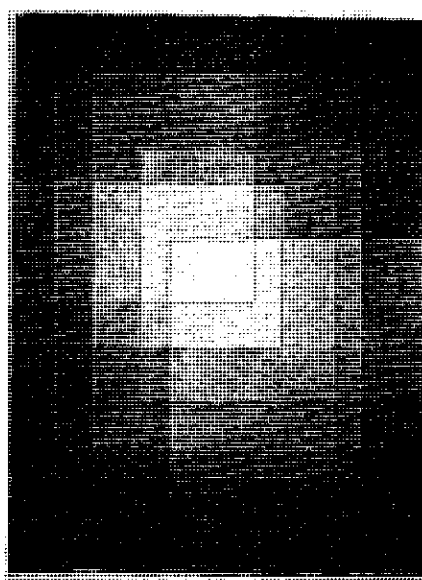




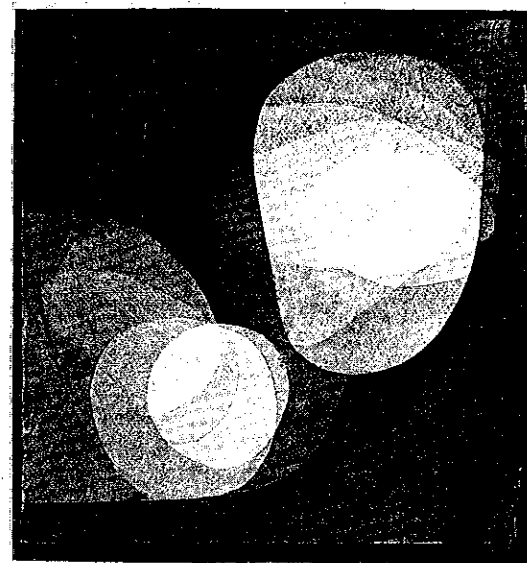
1



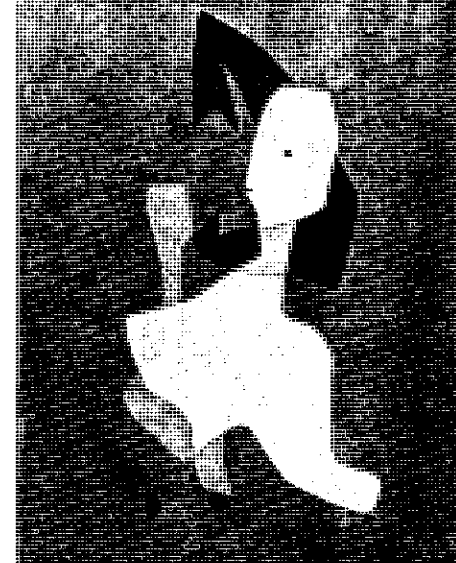
2



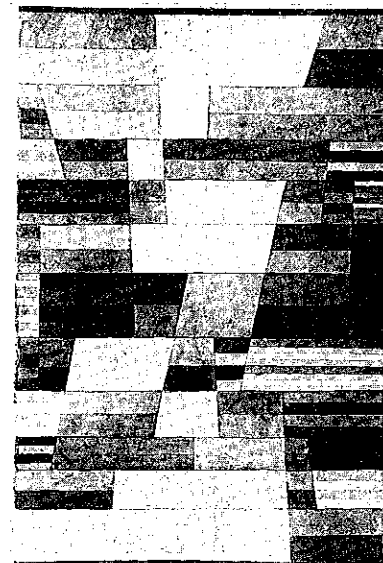
3



4



5



6

[1] 1922/79: *Separation at eventide*.
Watercolour, 33.5 x 23.5.

[2] 1932/v 17: *Helical flowers I*.
Black-and-white watercolour.

[3] 1930/x10: *Polyphonic setting for white*.
Watercolour, 33 x 24.

[4] 1929/AE 7: *Momentum*.
Watercolour, 25.8 x 25.

[5] 1932/13: *Toxin*.
Watercolour, 61.3 x 48.7.

[6] 1929/n1: *Monument in the fruit land*.
Watercolour, 46 x 30.8.

¹ Combined forms in format: [2 and 3].

² Composite form: [4 and 5].

³ Transverse shift.

Interpenetration, mutual intrusion (transparency):
[4, 5 and 6].

Cf. following illustrations in Volume 1: [1] p.11;
[2] p.376; [3] p.374.

Elementary forms and their interior (norms), threads, nodes.
Elementary forms in format (normal).

Combined forms in format (normal).

Composite form (the species).

Transverse shift.³

Elementary forms and their interior (norms), threads, nodes.

Elementary forms in format (normal).

Combined forms in format.¹

Composite form (the species).²

Transverse shift.³

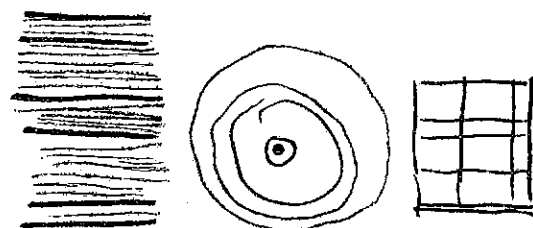
Aufgaben

princip. sehen hell dunkel = oder farbig Complementary } Vereinigung beider

ein rhythmisch. lineares Beispiel

ein individuelles Beispiel

ein individuelles Beispiel

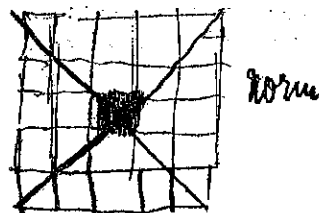


Exercises.¹
8/29.

General scales, tonal
or colour-complementary } both combined.
A rhythmic linear example.
A divisible example.²
An individual example.
Unidimensional or
two-dimensional plan.

¹ Cf. exercises, p.403.

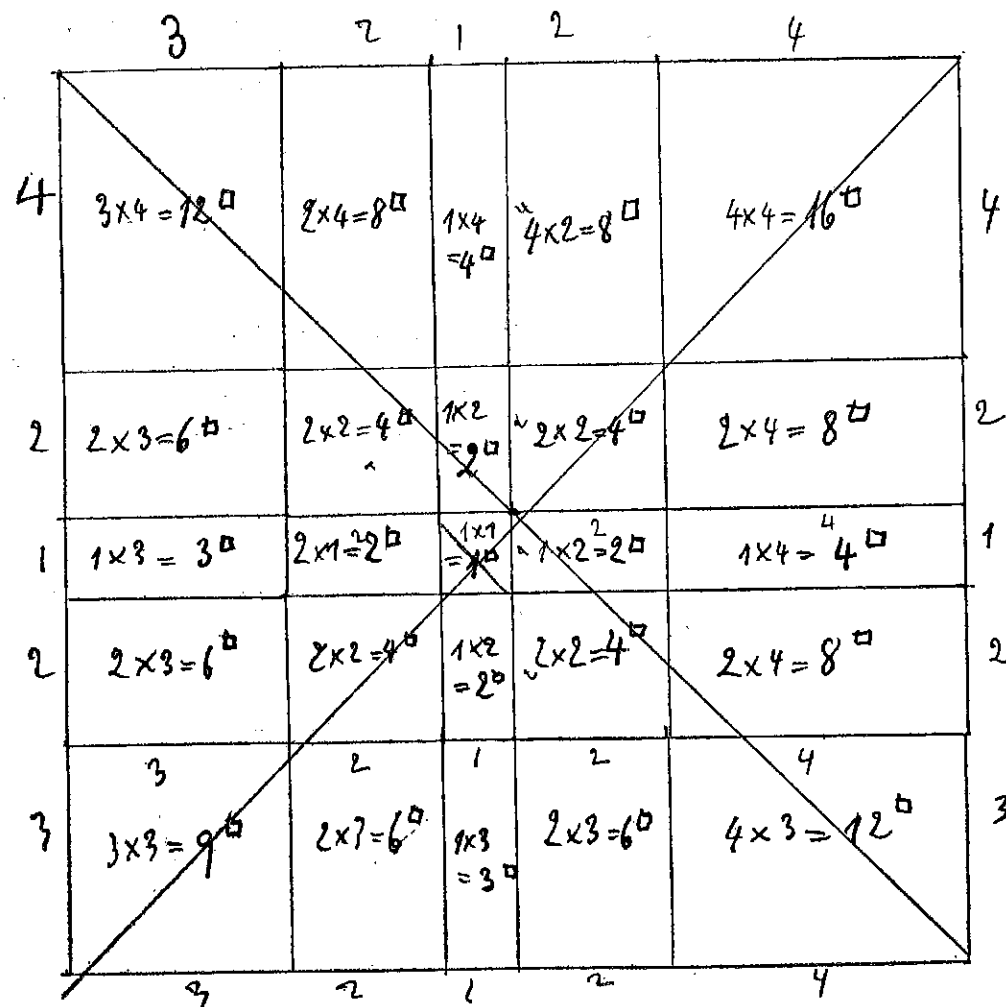
² A divisible example, the structure of which is
repeatable *ad libitum*.



- | | | |
|-----------------------|------------------------|-----------------|
| 1 Black | 8 Darkened medium grey | 13 |
| 2 Almost black | 9 Middle grey | 14 |
| 3 Extremely dark grey | 10 | 15 |
| 4 Very dark grey | 11 | 16 Almost white |
| 5 | 12 Light grey | 17 White |
| 6 Dark grey | | |
| 7 | | |

Shifted centre of gravity. 17/103a.

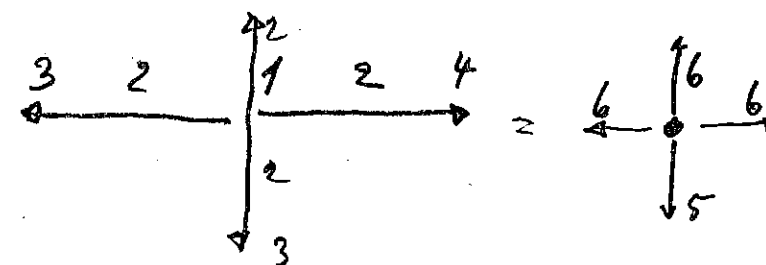
verlegter Schwerpunkt



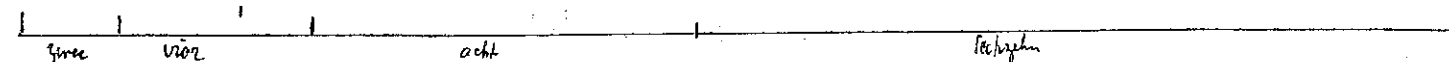
- 1 schwarz
- 2 fast schwarz
- 3 besonders dunkelgrau
- 4 sehr dunkles grau
- 5
- 6 dunkler grau
- 7
- 8 verdunkeltes Mittelgrau
- 9 grau weiß
- 10
- 11
- 12 hellgrau
- 13
- 14
- 15
- 16 fast weiß
- 17 weiß

Shifted centre of gravity. 17/103a.

Originally all the fields were equal in size and weight (energy content). Because of movement, only one field remains normal, the smallest one; all the others have grown by two-dimensional progressive movement.



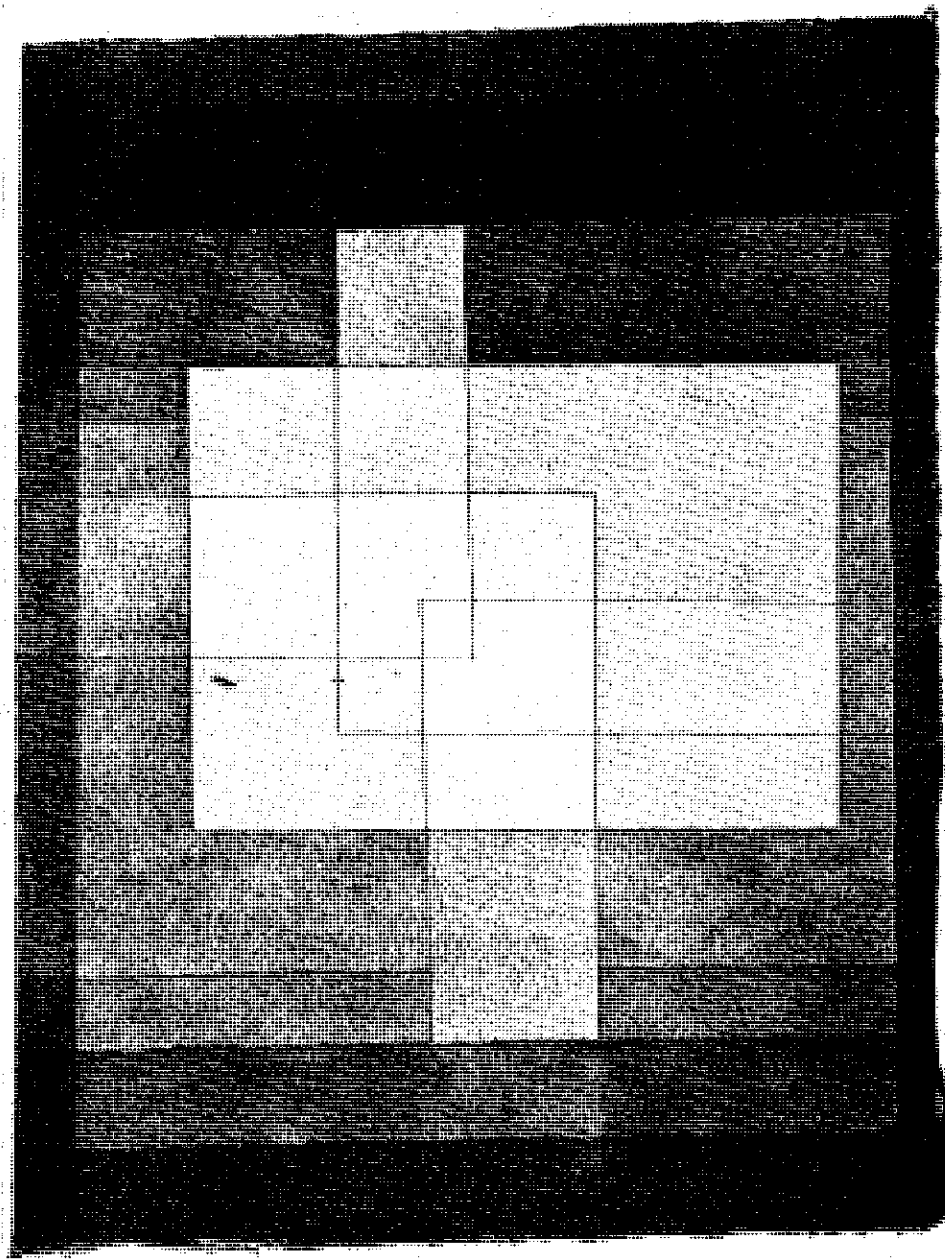
With expansion, the energy content declines, grows attenuated, in inverse proportion to the content. Conversely, energy rises as content declines. The strongest force balances the smallest figure, 1. In it lies the centre of gravity. The diagonal cross does not intersect in this field, hence has been shifted.



We have at most 16 units
 then 12
 then 9
 then 8
 6
 4
 3
 2
 and lastly 1

Against a white norm, black is the strongest force as 1=black
 17=white

Cf. scheme on p.403, executed with tonal values.

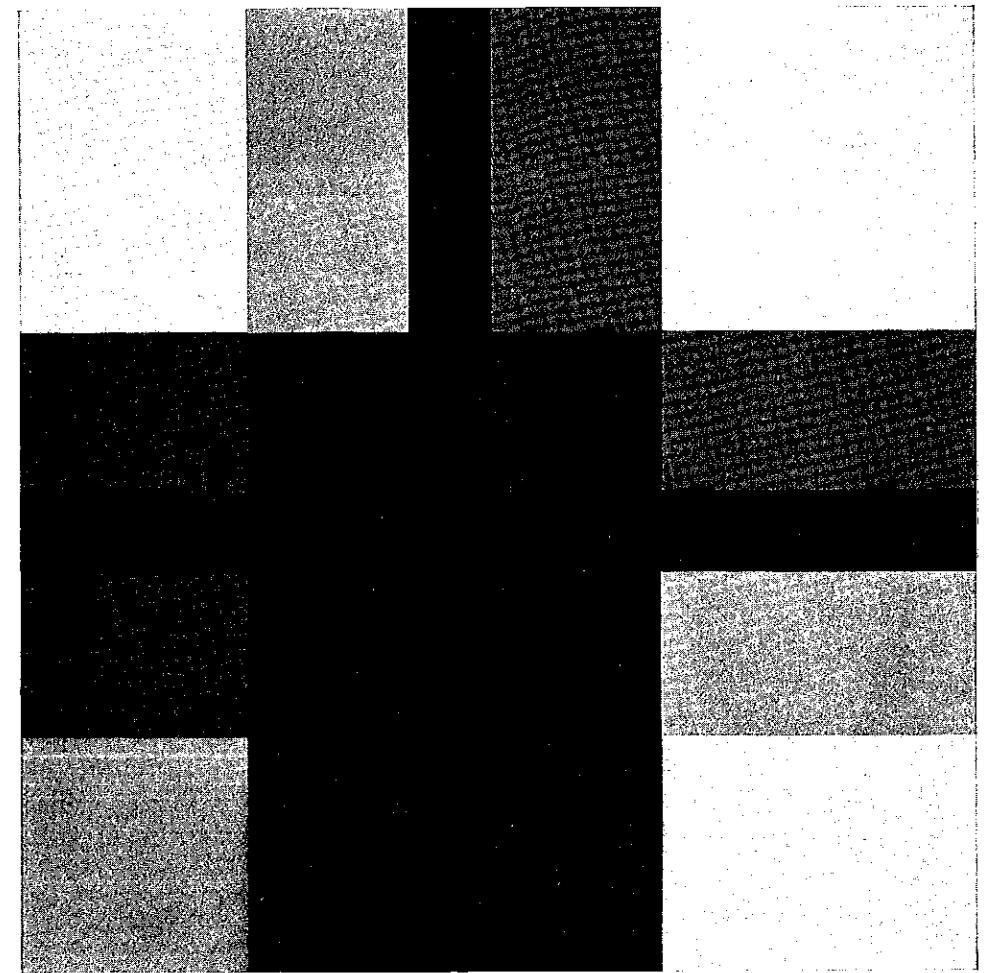


1930/y 1: *House, Interior and exterior*.
Watercolour. 30.4 x 24.

Reversal of the black-and-white scale in the example *Shifted centre of gravity*, 17/103 a, p.400, yields approximately the two-dimensional progressive movement in the 1930 watercolour: *House, Inside and out*.

As a freely created work, this watercolour is enriched beyond the progressive movement, by transparent interpenetration.

The linear figuration example *Shifted centre of gravity*, 17/103a, p.400, in tonal representation.



¹ Undated, probably Tuesday, 15 January 1924.

² Example 1, p.357.

Example 2, p.363.

Example 3, p.365.

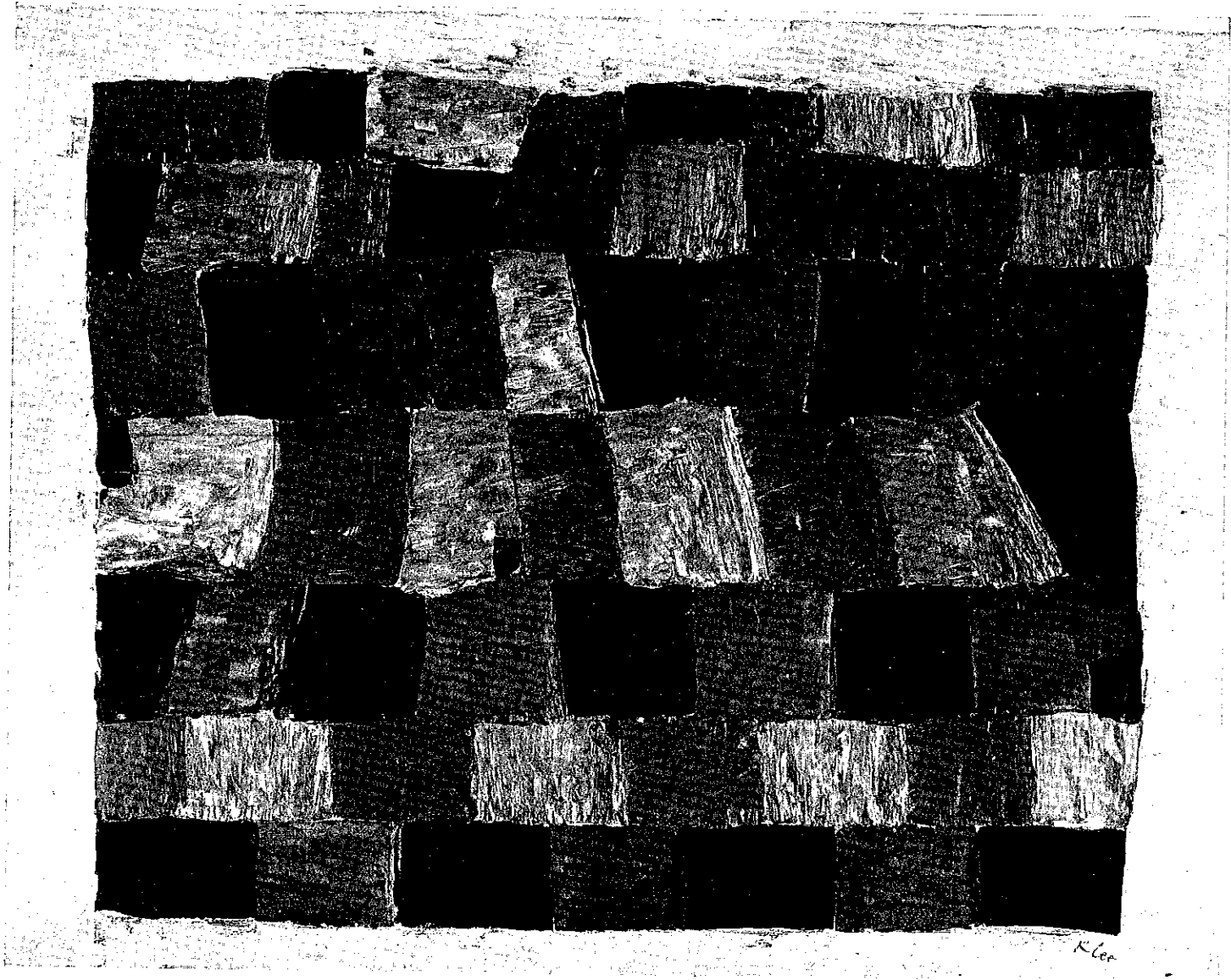
Example 4, pp.374-375.

Example 5, pp.374-375.

Example 6, p.381.

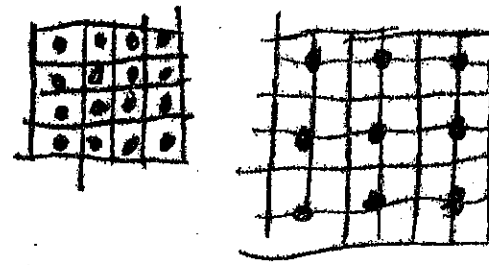
³ Note in appendix.

Afternoon:¹ Do articulations along lines of examples 1 to 6,² with means ranging from black to white. In doing so, bear in mind the realisation scheme 2.³



1930/O 9: Rhythmical, freer and more austere.
Colour paste, 47 x 61.5.

Attenuation and concentration.
(Thickening and thinning.)
45/146.

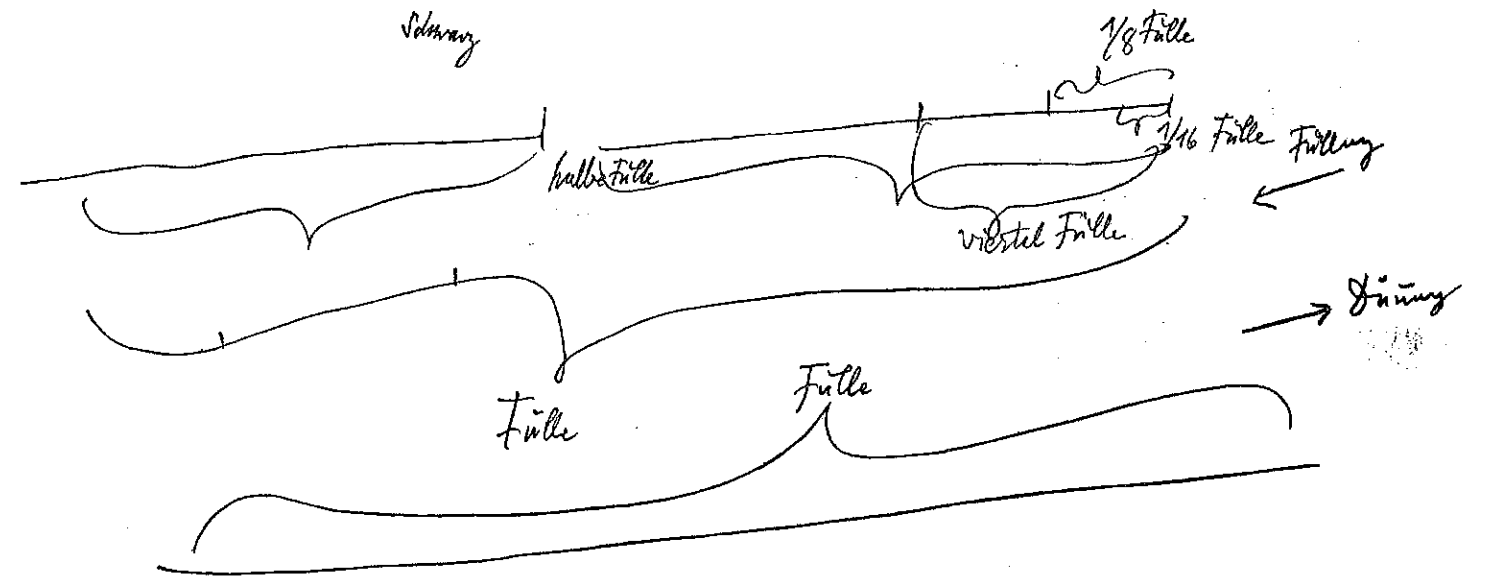


16-fold
attenuation→
1
Full

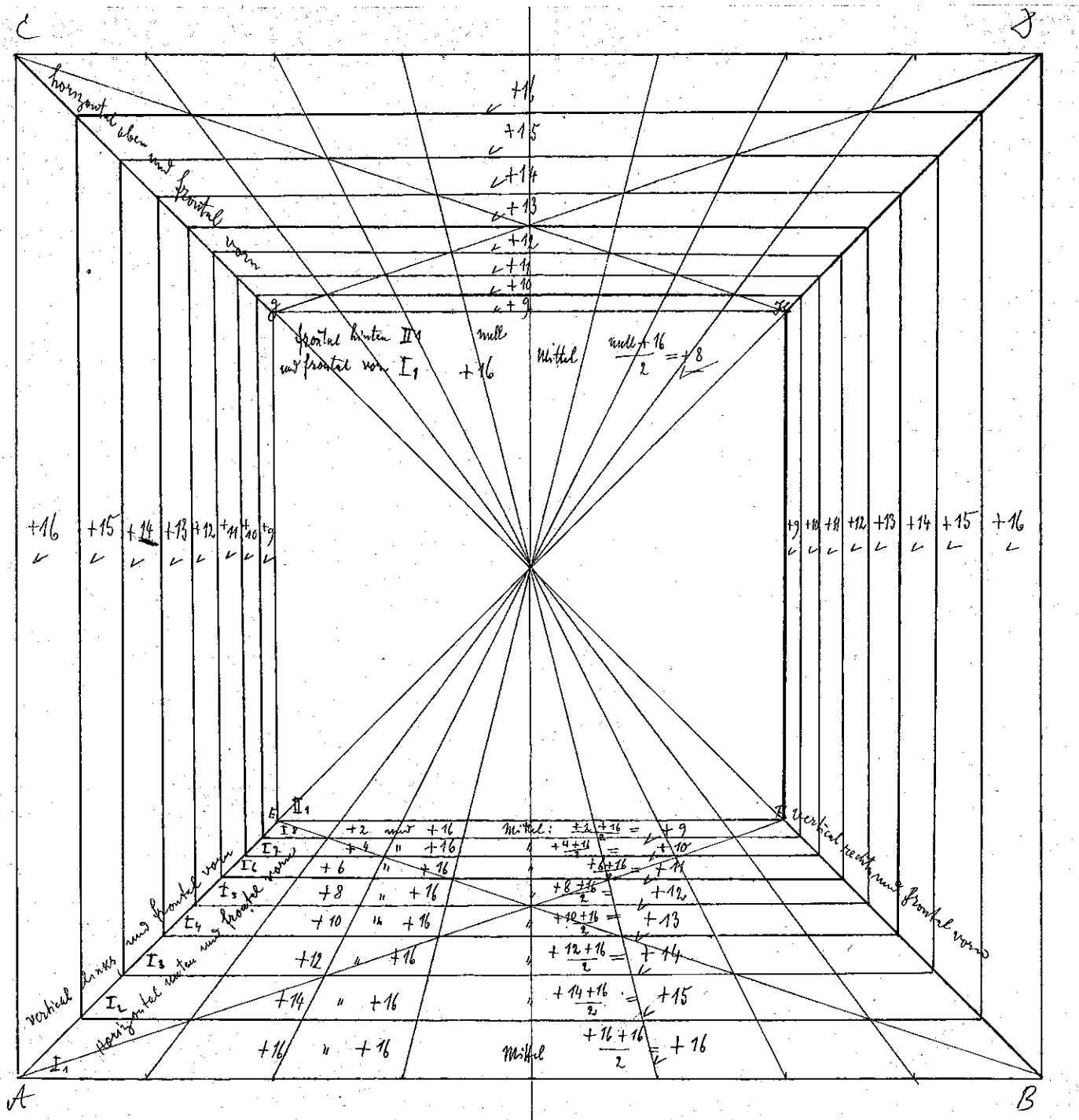
8-fold
2-fold
 $\frac{1}{2}$, hence only
halves in
relation to
full.

4-fold
4-fold
 $\frac{1}{4}$, hence only
quarters in
relation to
full.

←Concentration
2-fold
8-fold
Only $\frac{1}{8}$
of fullness
left
1-fold
16-fold
Only $\frac{1}{16}$
of fullness
left



Black
Half-full
Full
Quarter-full
Full
 $\frac{1}{8}$ -full
 $\frac{1}{16}$ -full
←Thickening
→Thinning



Major, minor in circular array, 80/39.
 Ma = major (majority).
 Major: Light grey, grey, dark grey.
 Mi = minor (minority).
 Minor: Black and white.
 Cf. Centrally irradiated growth, p.129.

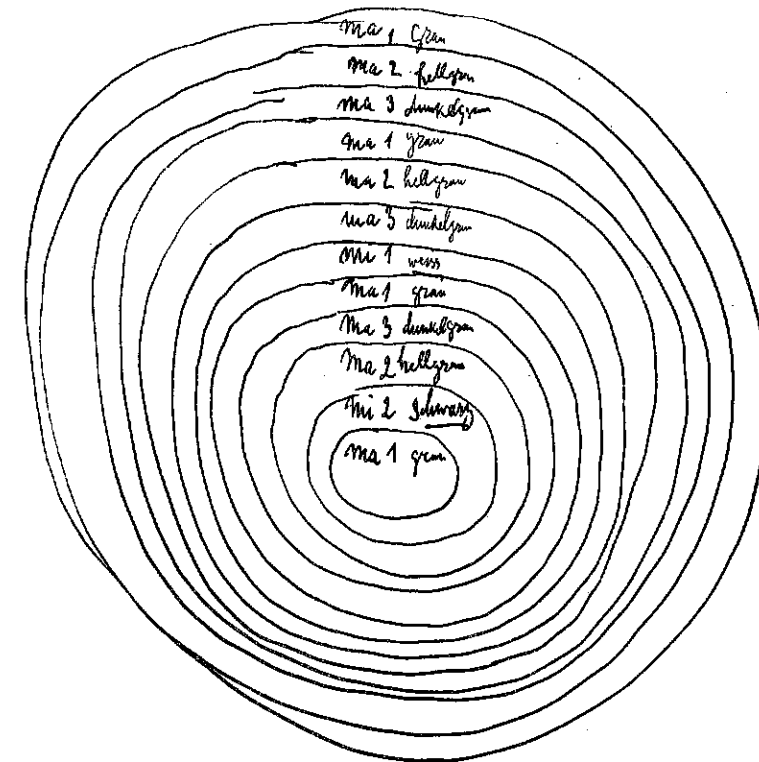
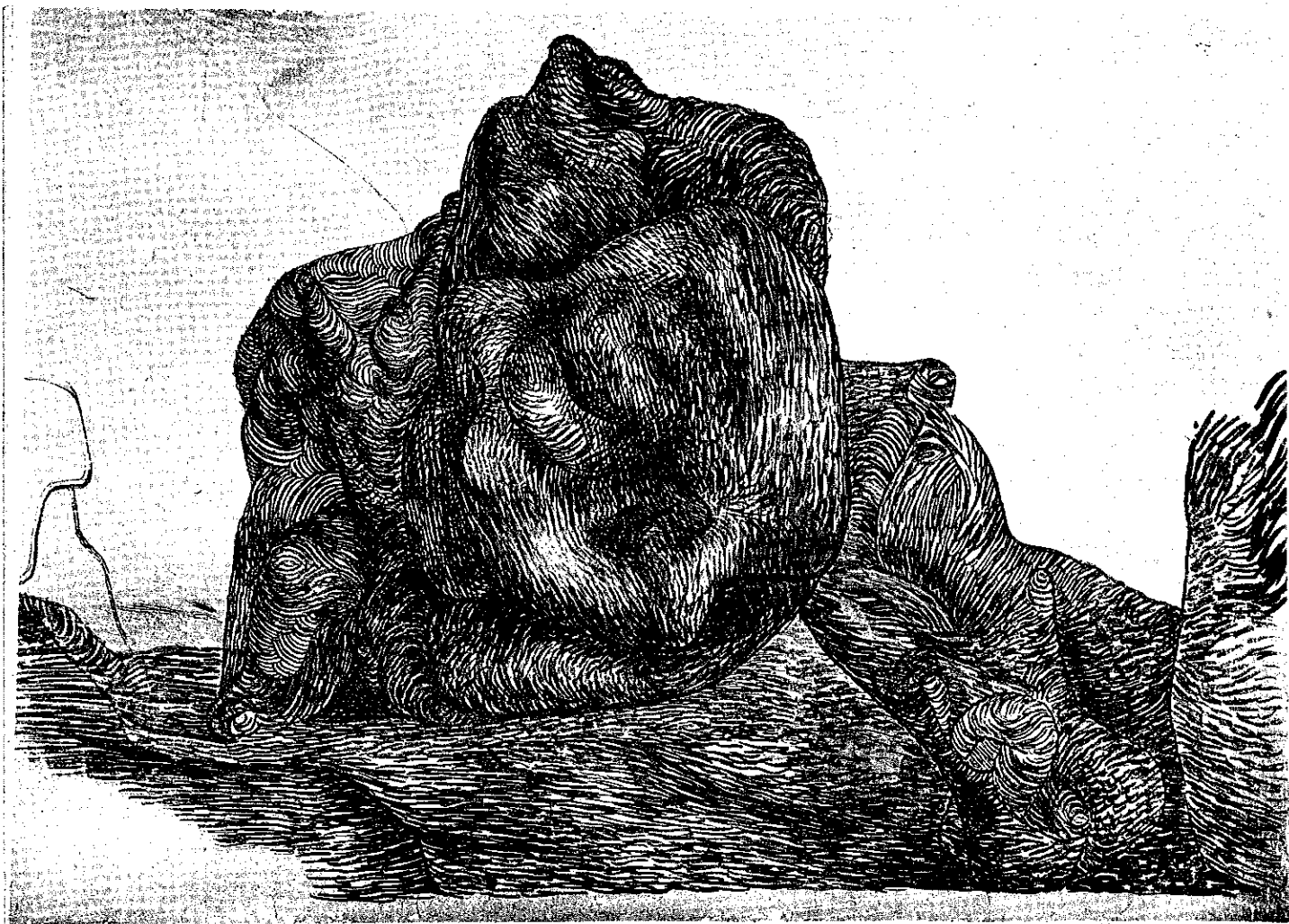


Illustration on p.406:
 Tonal representation of a regular cube of the first section (as transparency).
 Measurement by excess of white. 34/17.

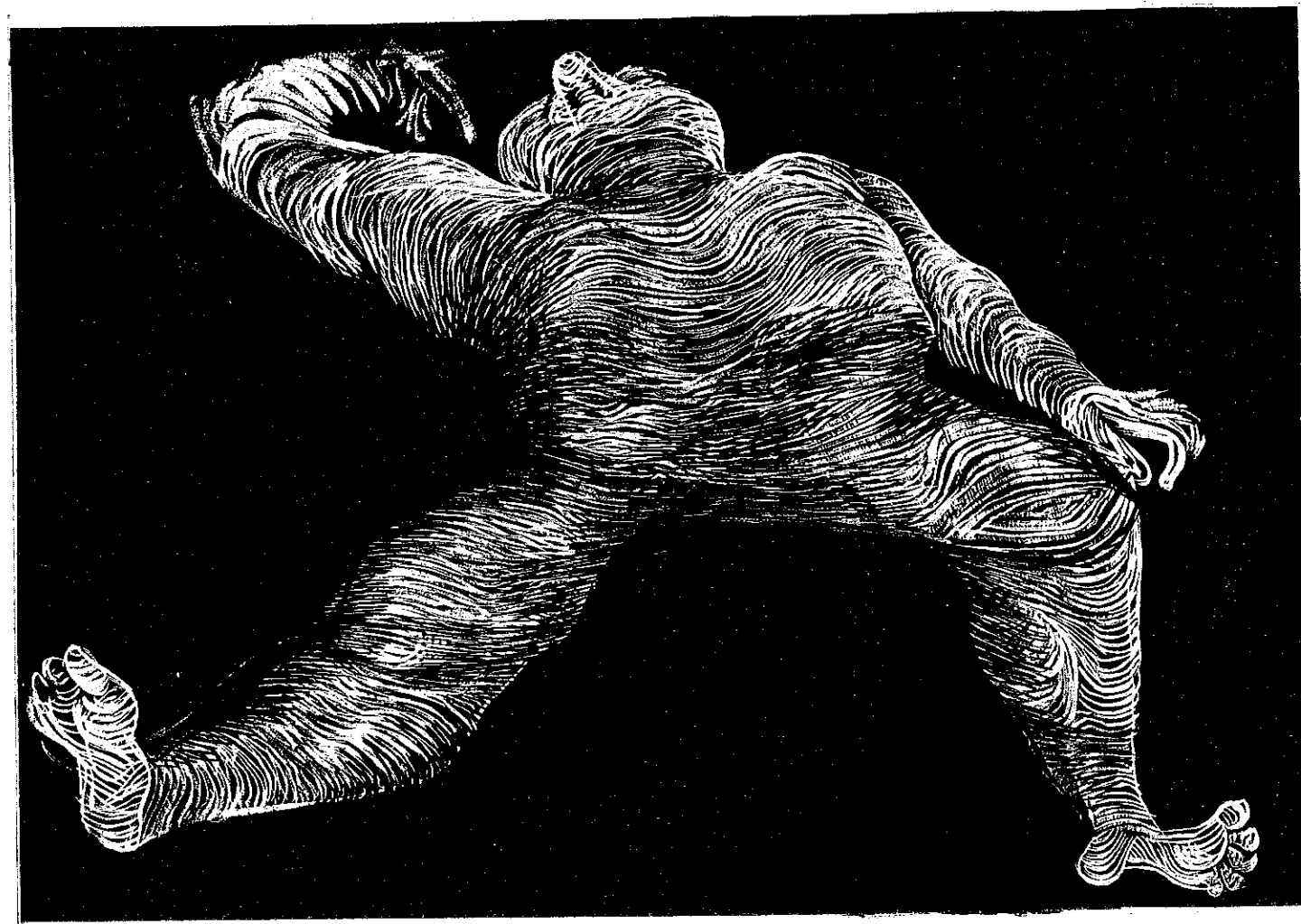
Over the entire representational plane A B C D, two tonal values must be considered, for two cube surfaces at a time coincide (grouped side by side). Since the near frontal aspect applies in every case, its white value = +16 combines with other values,

frontal	rear	(zero)
horizontal	bottom	(+16 to +2)
horizontal	top	(+16 to +2)
vertical	left	(+16 to +2)
vertical	right	(+16 to +2)

Each time the 'two values' coinciding at a given place are added and the sum divided by two, the result being a unit or average value, the character of which may be looked up in the table. For example, frontal rear=zero or middle grey is modified by frontal near (+16 or white) towards +8=light grey. $\left(\frac{\text{zero} + 16}{2} = +8\right)$ etc.



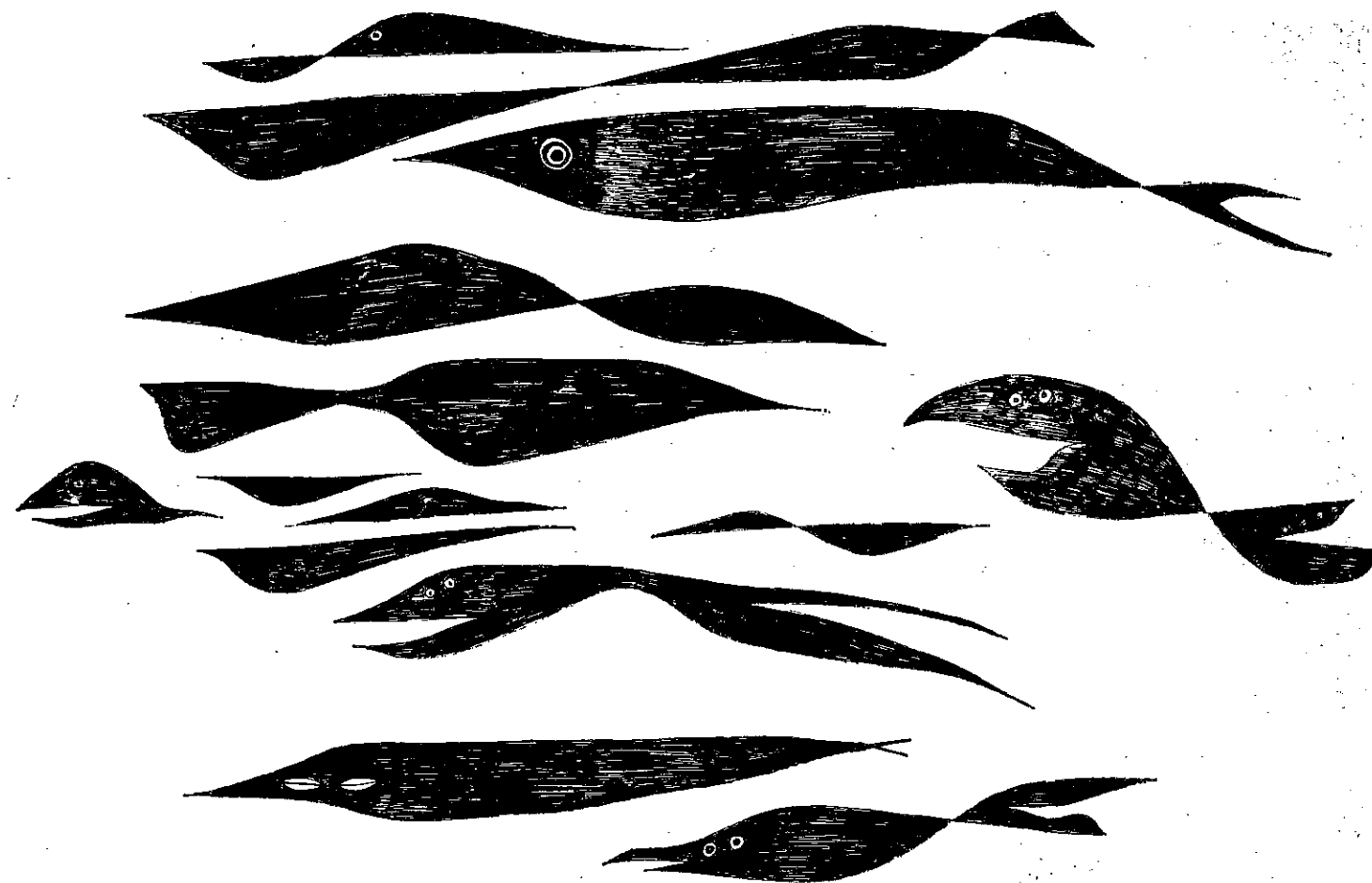
1935/p 19: *Briar*.
Watercolour. 22 x 31.



1933/N 8: *Life model (volume emphasised)*.
Tempera. 24.5 x 35.5.



1937/p 1: *Nocturnal landscape*.
Coloured grease crayon on black-grounded paper.



1926/v 2: *Migrating fish*.
Pen and India ink. 22.5 x 27.5.

Page 44

Random experimentation will yield a general picture of oscillation effects by their structure and dynamics. The oscillation effects are produced by sounds and frequencies in the acoustic realm. The picture shown on p.44 was produced by this new method of oscillating crystals. The ingredients are an oscillating crystal, a steel plate and quartz sand, and a stimulus impulse is required.

Cf. Hans Jenny: *Kymatik. Wellen und Schwingungen mit ihrer Struktur und Dynamik. Cymatics. The structure and dynamics of waves and vibrations.* Text in German and English. Basillus Press, Basle, 1967.

Paul Klee's text refers to *Traité d'Acoustique* by E. F. F. Chladni, Paris, 1802. Dr. Hans Jenny, kymatics researcher, states that Klee's formulation applies fully today to the actuality of oscillation effects:

'First, in other words, the vibratory impulse, the will or need for living action, then the transformation into a material event, and lastly its visible expression in the form of newly arranged material. We are the connecting links, we constitute the will for expression, while matter is the mediator and the sand figures are the ultimate formal end product. The main ingredients are matter and oscillation. It is as though matter were being fertilized, being invested with a kind of life of its own under this compulsion. The sand is a kind of index, an outer and subsidiary layer.'

Hans Jenny published an article in the Swiss monthly *Du*, Volume 29, June 1969, entitled 'Kymatika. Wellenphänomene und Schwingungseffekte', which throws much light on Klee's concepts of 'structure', 'articulation' and 'rhythmics', as well as on his *Urwege zur Form* (5/1-70) and the contrast doublet *Statik und Dynamik* (45/1-165).

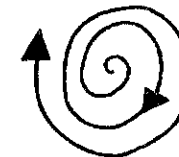
Page 117

Cf. the complete text of 'Retrospect of the last Weimar preliminary course of the winter of 1924/25' (8/10), introduction, p.47.

In this connexion, cf. also the 'Retrospect' of 12 November, 1926 (8/7), reproduced on p.56 of the introduction and transcribed on p.149, as well as the 'Retrospect' of March 1927 (8/4 and 8/4a), items 1-9, the text of which will be found on pp.120 and 122.

Page 145

The processes of weight and measure and their movements, extension and contraction, schematically represented in the form-giving examples on pp.136-143, are combined and assembled into a higher unity in the oil painting 1925/B 9: *Abstract in relation to a flowering tree*.



'Movement course (genetic) from the inside to the outside.'

The movements (and countermovements) represented purely analytically in the basic examples are to be thought of as conglomerate approaches to composition that overlap and supplement one another. To quote Klee: 'The reason is that I am unable to do what I should really like to do, discuss at one stroke a totality that comprises a very large number of all things (each in its place). Hence I must reconcile myself to the analytical methods.'

For the formal correlates, i.e. the square movements, cf. 'Movements of the square from normal to abnormal', p.138; Dimension and weight and their movements', pp.140-143; and the form-giving example 42/1a, p.141:

'Unequal weight at unequal dimension. Assuming a square as the starting point, the conclusion is that a progressive wrench has taken place, pushing out more and more the oblongs that were originally of the same size.'

Form-giving example 17/104a, p.137: 'Extension dilutes energy. Conversely, contraction enhances energy.'

Form-giving example 17/103a, p.401.

'Originally all the fields were equal in size and weight (energy content). Because of movement, only one field remains normal, the smallest one; all the others have grown by two-dimensional progressive movement. With expansion, the energy content declines, grows attenuated, in inverse proportion to the content level. Conversely, energy rises as content declines.'

In respect of pictorial content, cf. the text for figuration example 45/76, p.119.

'Essential flower data (the process of blooming).

'Approach to an open cross-section of a flower. Itself a living cross-section, a blossom opens up natural insight into the cross-sectional plane. The special solemnity of the generative process (release of positive-negative tension, synthesis of dual components) finds special expression in colour specificity.'

Cf. 'Stratification applied genetically', p.125, 'Temporally growing (leads)', p.127.

These two examples may be meaningfully rethought in terms of square movements (i.e. changes in dimension and weight).

Cf. further the text for 'Approach, essence, semblance, dynamic forces', p.149.

A formulation by Martin Heidegger in *Die Frage nach der Technik*, 1958, strikingly characterises the abstract process: 'The blossom bursts forth into bloom, into itself.'

Here are passages Klee crossed out in manuscript

(9/25a, 9/27, 9/27a):

'Relativity of elements of articulation:

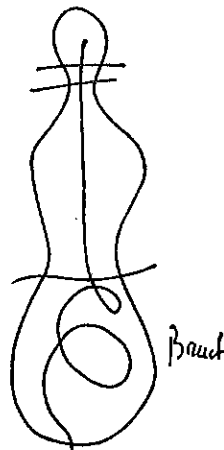
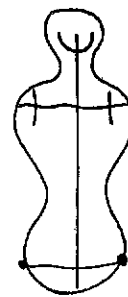
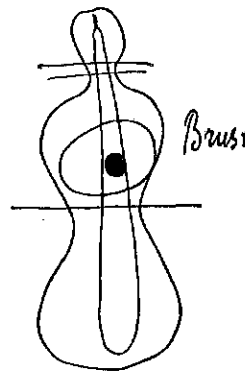
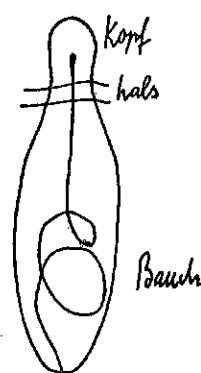
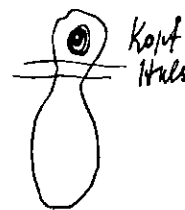
'Articulation of the human body

'a. seated.

'Initially the extremities, arms and legs, are irrelevant with respect to the main sphere of the body as a whole. If absolutely necessary, man can survive without them.'



'He certainly cannot live without a head. Indeed, men are beheaded, when they are to be dispatched – the head, in other words, is the chief organ. Like the battlement of a tower, it is placed as high as possible, as the main guardhouse, as headquarters. And in order to keep a better overview, it is mobile. This at once underlines the role of the neck as a connecting link.'



'The higher the head is borne, the better the main guard functions. Hence arrangement must be made for the whole body to stand erect. This is accomplished by the musculature, in conjunction with the bones. The main support is provided by the spinal column and the back muscles.'

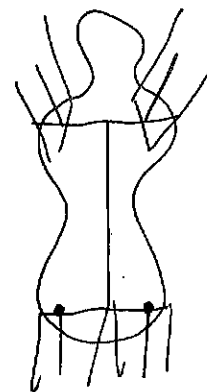
'Chest and pelvis as the main upper and lower components of the trunk's skeleton, basket-shaped above, bowl-shaped below.'



'In between soft articulation (the viscera).'



'Shoulders and hips provide the bearings for the organs of movement, arms and legs. Anatomical examples to follow later, so that we may get to the pictorial elements: dimensions, weight, quality.'



Page 291
In calculating Radius 2, Klee inadvertently wrote that $\frac{19}{8}=0.8333$ instead of, correctly, $\frac{19}{8}=0.555$; and in calculating Radius 1 he wrote $\frac{19}{8}=0.009$, instead of, correctly, $\frac{19}{8}=0.092$.

Page 297
The method of the Golden Section was originated by Leonardo Pisano, 38/40:

Add mechanically

$\rightarrow \frac{1}{1} \frac{1}{2} \quad 1+1=\frac{2}{3} \quad 1+2=\frac{3}{5} \text{ etc. } \frac{5}{8} \frac{8}{13}$
 $\rightarrow \frac{1}{1} \frac{2}{2} \quad 1+2=\frac{3}{3} \quad 2+3=\frac{5}{5} \text{ etc. } \frac{8}{13} \frac{13}{27}$

$3:5=5:8 \quad 13:21=21:34$
 $3 \times 8=24 \quad 21 \times 21=441$
 $5 \times 5=25 \quad 34 \times 13=442$

Page 354
Transcription of Sheet 39/57a.
On the degree to which the expansion of nine points at regular intervals on the tonal scale can be envisaged.
Distinguish: 10 limiting lines – 9 points.
Juxtaposition of the midpoints of regular and progressive segments.

First row:

1 White	6 Dark medium grey
2 Lightest grey	7 Normal dark grey
3 Normal light grey	8 Darkest grey
4 Light medium grey	9 Black
5 Normal medium grey	

Second row:

1 Very white	6 Near normal medium grey
2 Almost white	(a bit deeper)
3 Very light grey	7 Rather dark medium grey
4 Towards light grey	8 Very dark grey
5 Light medium grey	

Third row:

Regular white	6 Dark medium grey
1 Outside	7 Normal dark grey
2 Lightest grey	8 Darkest grey
3 Normal light grey	9 Black
4 Light medium grey	
5 Normal medium grey	

Fourth row:

White	6 Normal medium grey
1 Outside	7 Dark medium grey
2 Whitish	A trace deeper
3 Very light grey	8 Rather dark grey
4 Towards normal light grey, a bit deeper	9 Towards black
5 Light medium grey	

Page 383
No watercolour with the title *Fish* is listed in the oeuvre list for 1921. The present one is probably 1921/87: *Fish in the deep*.

Page 403
Cf. the various solutions to the exercises given: pp.312, 316, 321, 313, 339, 349, 356, 367, 371, 373, 403.
Cf. also the higher figuration examples from the pictorial work, p.398, Figs.1, 2, and 3.

List of works reproduced		E=Estate			
Year/No.	Title	Technique	Format	Owner	Page
1896/E	<i>From the Elfenau</i>	Pencil drawing from a sketchbook		Paul Klee-Stiftung, Berne	65
1897/E	<i>Winter landscape on the River Aare near Berne</i>	Pencil	10 x 13	Collection Felix Klee, Berne	69
1899/E	<i>A group of trees</i>	Oil on cardboard	35 x 49	Paul Klee-Stiftung, Berne	66
1900/E	<i>Untitled (Landscape on the River Aare)</i>	Oil on canvas	Each part 144 x 48	Collection Felix Klee, Berne	66
1905/24	<i>Garden scene, watering cans, a cat, a red chair, from nature</i>	Watercolour under glass	14 x 18.5	Collection Felix Klee, Berne	15
1906/E	<i>Scene in the Elfenau near Berne</i>	Oil on chalk-grounded paper	33.5 x 24.5	Collection Felix Klee, Berne	67
1909/62	<i>Well-cared-for forest path, Waldegg near Berne</i>	India ink	17.5 x 25.9	Collection Rolf Bürgi, Belp/Berne	304
1909/42	<i>Deciduous forest, Eggholz near Berne</i>	Pen-and-ink	26.5 x 15	Collection Rolf Bürgi, Belp/Berne	305
1910/E	<i>Country lane with young trees, 1st version</i>	Etching	15.2 x 21.7	Collection Felix Klee, Berne	67
1912/166	<i>Landscape, yellow horse and purple signpost</i>	Pastel on engraving paper	15 x 18.5	Collection Felix Klee, Berne	67
1915/245	<i>Overgrown houses</i>	Watercolour and tempera on chalk ground	18.3 x 17.5		212
1916/35	<i>Milkwort and pansy</i>	Pen-and-ink	15.5 x 23.7	Öffentliche Kunstsammlung, Basle	54
1919/205	<i>Town R.</i>	Watercolour and tempera on structured plaster ground	16.5 x 22	Galerie Beyeler, Basle	238
1920/91	<i>Genie serving a small breakfast (Angel fulfilling a wish)</i>	Lithograph with watercolour	19.8 x 14.8		100
1920/99	<i>Man-fish-man-eater</i>	Drawing			170
1921/166	<i>Plants in the field II. Seven growths in a row side by side</i>	Pen-and-ink	26.6 x 14.6	Öffentliche Kunstsammlung, Basle	52
1921/30	<i>Queen of hearts</i>	Lithograph	25.5 x 17.5		104
1921/125	<i>Chorale and landscape</i>	Oil on paper on wood	35 x 31	Collection W. Allenbach, Berne	184
1921/83	<i>Cool dry garden</i>	Watercolour edged in tinfoil	24 x 30.5		332
1921/69	<i>Fugue in red</i>	Watercolour	24.5 x 37, detail	Collection Felix Klee, Berne	347
1921/88	<i>Crystal gradation</i>	Watercolour	24.5 x 31.5	Collection Marguerite Arp-Hagenbach, Basle	348
1921/89	<i>Red nuances</i>	Watercolour	21 x 31		382
1921/unnumbered	<i>Fish</i>	Watercolour	21.7 x 16	Galerie Rosengart, Lucerne	383
1922/19	<i>Red-green architecture (yellow-purple gradation)</i>	Oil on canvas on cardboard	38 x 43	Yale University Art Gallery, Collection of the Société Anonyme, New Haven	230
1922/113	<i>Destiny at the turn of the year</i>	Gouache and watercolour			270
1922/69	<i>Harbinger of autumn</i>	Watercolour	26.4 x 33.2	Yale University Art Gallery	314

Year/No.	Title	Technique	Format	Owner	Page
1922/174	<i>Growth of night-blooming plants</i>	Oil on cardboard	47 x 34	Collection O. and E. Stangl, Munich	350
1922/79	<i>Separation at eventide</i>	Watercolour	33.5 x 23.5	Collection Felix Klee, Berne	398
1923/91	<i>Man in love</i>	Lithograph with red tone plate, second state	27.4 x 19		166
1923/159	<i>Group linked by stars</i>	Oil and watercolour on paper	32.5 x 48.5	Collection Felix Klee, Berne	186
1923/234	<i>Chinese porcelain</i>	Watercolour on plaster, varnished			190
1923/238	<i>Harmony from rectangles in red, yellow blue, white and black</i>	Oil on cardboard	70 x 51	Paul Klee-Stiftung, Berne	192
1923/242	<i>North Sea picture</i>	Watercolour	24.7 x 31.5	Paul Klee-Stiftung, Berne	320
1923/25	<i>Magic theatre</i>	India ink and watercolour	33.7 x 22.6	Paul Klee-Stiftung, Berne	326
1923/150	<i>Just before the lightning flash</i>	Watercolour	28 x 31.5	Galerie Beyeler, Basle	338
1924/186	<i>ARA. Cool breezes in a garden in the torrid zone</i>	Pen-and-ink drawing and watercolour	29 x 21		36
1924/252	<i>Actor's mask</i>	Oil	36.8 x 31.8		181
1924/136	<i>Princess of Araby</i>	Watercolour and oil on paper	25.5 x 19.2	The Baltimore Museum of Art	222
1924/126	<i>Structural II</i>	Gouache	26.7 x 21.6	The Miller Company Collection, Meriden, Conn.	236
1924/114	<i>Carnival in the mountains</i>	Watercolour	26.3 x 33	Paul Klee-Stiftung, Berne	262
1924/164	<i>Fairground music.</i>	Pen-and-ink, crayon, pencil and watercolour	26.5 x 30.5	Private collection, Pratteln/Basle	274
1924/112	<i>Still life with props</i>	Oil on muslin on cardboard	38.5 x 46.9	Paul Klee-Stiftung, Berne	278
1924/153	<i>Snail</i>	Watercolour and pen-and-ink on cardboard	19.7 x 28.6	Private collection, Schaffhausen	288
1924/25	<i>Contrasts at night</i>	Watercolour and gouache	23 x 36.5		324
1924/15	<i>Physiognomic crystallisation</i>	Oil on muslin on cardboard	41.8 x 51.4	Kunstsammlung Nordrhein-Westfalen, Düsseldorf	396
1925/8	<i>Vast (Rosenhafen)</i>	Oil drawing and watercolour on plaster-grounded gauze on board	36 x 58.8	Collection W. Allenbach, Berne	42
1925/x 7	<i>A beetle</i>	Pen-and-ink with wash	36 x 21	Paul Klee-Stiftung, Berne	56
1925/m 9	<i>Southern coast</i>	Watercolour	27 x 37	Galerie Beyeler, Basle	68
1925/B 9	<i>Abstract in relation to a flowering tree</i>	Oil on cardboard	38.5 x 39	Collection Rolf Bürgli, Belp/Berne	145
1925/10	<i>Flowers in glasses</i>	Oil on paper on cardboard	52.5 x 41.5	Collection Mrs Erika Meyer-Benteli, Bümpliz/Berne	148
1925/d 7	<i>Woods near M.</i>	Pen-and-ink			198
1925/44	<i>Rocky lookout</i>	Watercolour and air brush on paper	37.5 x 23.5	Collection Dr Israel Rosen, Baltimore	210
1925/R 3 zero	<i>Ass</i>	Lithograph	24 x 14.5		216
1925/m 8	<i>Houses along the park</i>	Watercolour	23.5 x 15.5	Galerie Beyeler, Basle	217
1925/n 6	<i>Settlement in the woods</i>	Pen-and-ink			281
1925/V 2	<i>Landscape with crows</i>	Oil and watercolour on muslin	43.5 x 44	Collection Dr Othmar Huber, Glarus	254
1925/K 5	<i>Ship II C In port</i>	Oil and watercolour on chalk-grounded cardboard	23 x 34	Collection Erika Meyer-Benteli, Bümpliz/Berne	266
1925/U four	<i>Daimonia</i>	Pen-and-ink	25 x 25	Paul Klee-Stiftung, Berne	269
1925/Y zero	<i>Village in red and blue</i>	Watercolour on chalk-grounded paper	41.8 x 38.8	Paul Klee-Stiftung, Berne	280
1925/x 6	<i>Ancient chord</i>	Oil on cardboard	38 x 35	Öffentliche Kunstsammlung, Basle	372
1925/v 1	<i>Still life with fragments</i>	Oil and watercolour on cardboard	47 x 70.5	Collection Richard S. Zeisler, New York	376
1925/w 3	<i>Monsieur Perlenschwein</i>	Watercolour with air brush	51.5 x 35.5	Kunstsammlung Nordrhein-Westfalen, Düsseldorf	388
1925/3	<i>Mountains in winter</i>	Watercolour with air brush	28 x 37	Hermann Rupp-Stiftung, Kunstmuseum, Berne	390
1926/U 6	<i>Youthful park</i>	Oil on gauze on cardboard	43.3 x 50.2		55
1926/qu 9	<i>Water park</i>	Watercolour	25.5 x 37	Collection Felix Klee, Berne	112
1926/B 8	<i>Forest clearing</i>	Watercolour	36.7 x 51.2	Paul Klee-Stiftung, Berne	115
1926/124	<i>Round about the fish</i>	Oil and tempera on muslin on cardboard	47 x 64	The Museum of Modern Art, New York	188
1926/U 8	<i>Young forest panel</i>	Oil on plaster-grounded muslin on cardboard	36 x 25.5	Galerie Beyeler, Basle	194
1926/T 1	<i>Garden city idyll</i>	Scratched on plaster, tinted with tempera	42.5 x 39.5	Öffentliche Kunstsammlung, Basle	226
1926/P 2	<i>Knight with elephant</i>	Pen-and-ink and watercolour, sprayed	21 x 31	Private collection, Pratteln/Basle	260
1926/Y 7	<i>March flora</i>	Oil on canvas	26.5 x 21.5		269

Year/No.	Title	Technique	Format	Owner	Page
1926/f 3	<i>The balloon</i>	Oil on cardboard	32.5 x 33	Collection Erika Meyer-Benteli, Bümpliz/Berne	272
1926/v 2	<i>Migrating fish</i>	Pen and India ink	22.5 x 27.5	Collection Rolf Bürgli, Belp/Berne	411
1927/Oe 5	<i>Flower and fruit</i>	Pen-and-ink	35.6 x 30.3		120
1927/UE 1	<i>Temperaments (blossoms and fruit)</i>	India ink	30.3 x 45.3	Paul Klee-Stiftung, Berne	122
1927/omega 6	<i>Times of the plants (time and plants)</i>	Oil on wood	39 x 53.5	Galerie Beyeler, Basle	126
1927/Oe 10	<i>Underwater</i>	Pen and India ink	30 x 45	Galerie Beyeler, Basle	134
1927/2	<i>Flag-decked city</i>	Watercolour	21.8 x 29.6		196
1927/231	<i>Côte de Provence 3</i>	Watercolour	31 x 23	Collection R. Stenerson, Oslo	206
1927/x 5	<i>Côte de Provence 7</i>	Watercolour	13 x 30.5	Galerie Beyeler, Basle	207
1927/x 3	<i>Côte de Provence 5</i>	Watercolour			208
1927/k 10	<i>Pastoral (rhythms)</i>	Oil on canvas on cardboard	69.2 x 52.4	The Museum of Modern Art, New York	222
1927/Oe 6	<i>Context and fruit</i>	Pen and India ink	30.3 x 45.4	Paul Klee-Stiftung, Berne	263
1927/T 6	<i>Porquerolles (looking south)</i>	Black chalk on yellowish notepaper	21 x 33	Collection Felix Klee, Berne	279
1927/k 1	<i>Fish people</i>	Oil and tempera on plaster and oil-grounded canvas on cardboard on wood	32 x 55	Paul Klee-Stiftung, Berne	380
1928/N 9	<i>Row of trees in a park</i>	Watercolour on plaster-grounded gauze	19 x 49	Collection Felix Klee, Berne	6
1928/F 10	<i>Old town and bridge</i>	Tempera on sackings	11.5 x 42.5	Galerie Beyeler, Basle	199
1928/29	<i>Height I</i>	Etching on copper	22.5 x 22.5		214
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1928/B 5	<i>Second-degree prickly current</i>	Pen and India ink	45.4 x 60	Paul Klee-Stiftung, Berne	264
1929/co 10	<i>Scented isle</i>	Watercolour	23 x 31	Galerie Beyeler, Basle	40
1929/y 4	<i>Young palm tree</i>	Pencil	32.9 x 20.9	Paul Klee-Stiftung, Berne	68
1929/x 10	<i>Fig tree</i>	Watercolour	28 x 21.3	Galerie Rosengart, Lucerne	70
1929/UE 9	<i>Movement in locks</i>	Pen-and-ink	11 x 30	Collection Felix Klee, Berne	49
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1930/x 6	<i>Hill and air, synthesis</i>	Watercolour	25.5 x 31	Galerie d'Art Moderne, Basle	32
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1930/199	<i>Colourfully blooming</i>	Pastel with coloured paste on paper	41.5 x 51.5	Collection W. Allenbach, Berne	148
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1931/r 12	<i>Castle garden</i>	Oil on canvas	67.5 x 55	Collection Lady Hulton, London	346
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1933/I 4	<i>Deep in the woods</i>	Coloured paste on paper	32 x 42.6	Paul Klee-Stiftung, Berne	303
1933/N 8	<i>Life model (volume emphasised)</i>	Tempera	24.5 x 35.5	Galerie Beyeler, Basle	409
1934/N 4	<i>Of sere twigs</i>	Sepia, brush and pen drawing	27.5 x 47.2	Öffentliche Kunstsammlung, Basle	58
1934/k 3	<i>Landscape near Pilamb</i>	Watercolour and pen and ink on Ingres paper	64 x 48.3	Kunstsammlung Nordrhein-Westfalen, Düsseldorf	78
1934/T 13	<i>Sparse foliage</i>	Mixed media and watercolour	32 x 48	Galerie Beyeler, Basle	2
1934/k 14	<i>Last leaves</i>	Pastel, red chalk and charcoal on cotton	33.5 x 38	Galerie Beyeler, Basle	12
1934/U 15	<i>Prize-winning apple</i>	Oil on gauze on plywood	55 x 55	Collection Felix Klee, Berne	38
1934/k 7	<i>Suffering fruit</i>	Watercolour, oil and pencil	30 x 46.5	Collection Felix Klee, Berne	40
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1934/x 16	<i>Rushing water</i>	Watercolour and pen-and-ink	29.5 x 49.5		78
1934/p 20	<i>Piled high</i>	Pencil	48.6 x 31.4	Paul Klee-Stiftung, Berne	88
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1934/T 15	<i>Landscape with accents</i>	Watercolour with coloured paste on paper	31 x 48.1	Paul Klee-Stiftung, Berne	116
1934/R 18	<i>Flower vase</i>	Watercolour	31.3 x 21.8	Galerie d'Art Moderne, Basle	150
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1934/U 11	<i>De-animation</i>	Varnished watercolour on cardboard	31 x 50	Paul Klee-Stiftung, Berne	271
1934/L 7	<i>Something turbid</i>	Oil on canvas	17 x 42	Museo Civico di Torino, Galleria d'arte moderna	282
1934/N 10	<i>Groups, old and young</i>	Pencil	48.5 x 62.3	Paul Klee-Stiftung, Berne	298
1934/T 20	<i>The invention</i>	Watercolour and wax pigment on cotton on wood	50.5 x 50.5	Collection Felix Klee, Berne	392
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1935/3	<i>Random movement of water</i>	Pencil	17.8 x 26.9	Paul Klee-Stiftung, Berne	46
1935/18	<i>Wooded continuity</i>	Pencil	17.9 x 23.8	Paul Klee-Stiftung, Berne	67
1935/qu 11	<i>Projecting rock</i>	Pen and watercolour pigment on paper	18 x 28	Collection Felix Klee, Berne	259
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1937/L 13	<i>Coastal formation</i>	Mixed media on paper	12 x 22.5	Galerie Beyeler, Basle	45
1937/p 7	<i>Water route</i>	Charcoal and coloured paste	25.9 x 48.5	Paul Klee-Stiftung, Berne	70
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1938/M 6	<i>Locks</i>	Zulu crayon	9.1 x 38.7	Collection Felix Klee, Berne	25
1938/78	<i>Growth stirs</i>	Coloured paste on newspaper	33 x 48.5	Collection Felix Klee, Berne	26
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1938/R 13	<i>'Above and below'</i>	Zulu crayon	27 x 21.5	Collection Felix Klee, Berne	197
1939/KK 13	<i>Cemetery (detail)</i>	Coloured paste on paper	37 x 49.6	Paul Klee-Stiftung, Berne	71
1939/CC 17	<i>Hunting tree</i>	Oil on canvas	100 x 80	Kunsthaus, Zurich	73
1939/k 20	<i>Botanical garden (exotic trees section)</i>	Coloured paste and watercolour on paper	14 x 20	Galerie d'Art Moderne, Basle	79
1939/E	<i>Birds in a water park</i>	Watercolour on muslin on wood	16.5 x 65	Collection Hans Grether, Basle	23
1939/CC 14	<i>Deep in the woods</i>	Watercolour and egg emulsion on oil-grounded canvas	50 x 43	Kunstsammlung Nordrhein-Westfalen, Düsseldorf	27
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1939/JJ 8	<i>Reefs in the channel</i>	Coloured paste on jute	48 x 44.4	Collection Felix Klee, Berne	80
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1939/ZZ 12	<i>Brotherhood</i>	Pencil	21 x 29.5	Paul Klee-Stiftung, Berne	162
1939/890	<i>Omphalocentric presentation</i>	Coloured paste on silk on jute	70 x 50.5	Kunstsammlung Nordrhein-Westfalen, Düsseldorf	164
1939/ww 18	<i>Dalmonia</i>	Tempera and watercolour on paper	21 x 32.8	Paul Klee-Stiftung, Berne	176
1939/GH 8	<i>Voice from the ether: 'And thou shalt have thy fill!'</i>	Oil and tempera on paper	50.5 x 38	Galerie Beyeler, Basle	178
1939/Hi 19	<i>The body too has a countenance</i>	Coloured paste and oil on paper	31 x 23.5	Collection Felix Klee, Berne	179
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1940/OG 5	<i>Everything runs after!</i>	Coloured paste on paper	32 x 42.5	Paul Klee-Stiftung, Berne	168
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List of form-giving and figuration examples

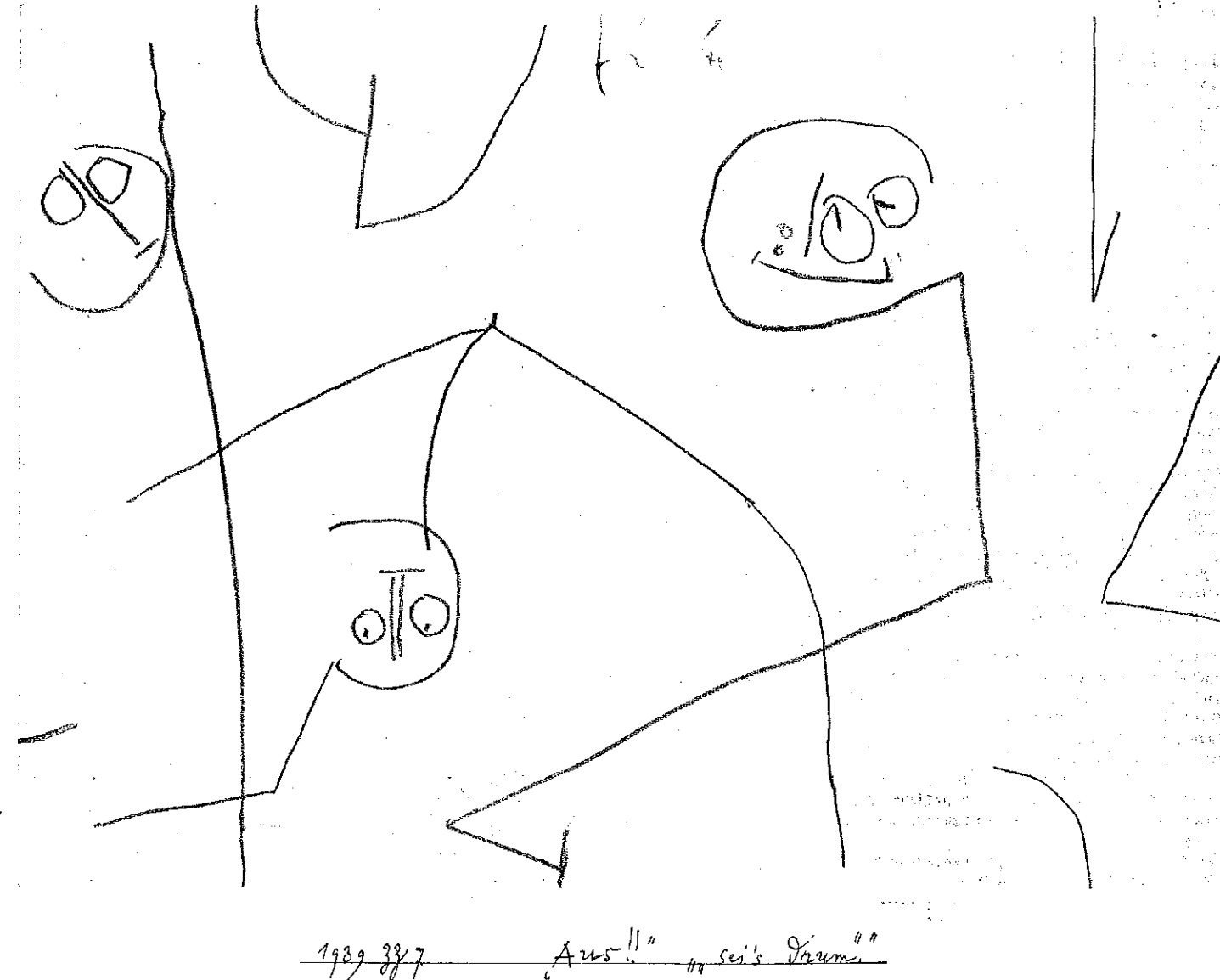
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1989/ZZ7: 'Donel' 'Then let it be.'
Pencil. 21 x 29.5

**Words and Images for Klee
a Bibliography**
by Bernard Karpel, Chief Librarian,
The Museum of Modern Art, New York

Publication of the writings of Paul Klee envisages, at this point in time, a work with few parallels in the history of art, past or present. So far, two of four projected volumes have appeared, the significance of which must be measured by more than numbers. Like the multi-talented author himself, the contents radiate the qualities that illuminate his art. A blend, consisting of the public face of an intensely private person and the precise objectification of symbolic or mystic ideas, produced a unique œuvre. For Klee, the œuvre is verbal as well as visual.

In the first volume, the editor included a concise bibliography of basic references. For the second volume, the present compiler has assembled a comprehensive record of writings *by* and *about* the artist, embracing bibliographies, books and periodicals. Although some catalogues are listed, in order not to overlook certain desirable data, no effort can be made on this occasion to do two things in respect to exhibitions. First, to inventory the very large quantity of *published catalogues* which probably exceed in number those for any artist except Picasso. Second, to clarify the chronology and details on *exhibitions as events*, i.e. those for which formal publications were not issued. Together, the first as bibliography, the second as chronology, such documentation deserves separate and extensive listing, conceivably in the next third volume of this definitive series. In anticipation of a fourth volume of Klee texts, it is possible to foresee a final *addenda*. Logically, this should comprise *missing references*, particularly in an effort to widen international representation, e.g. Latin America, the Orient, as well as variant editions and reprints; secondly, a comprehensive index to *colour reproductions* in the citations included in the bibliography and, finally, an alphabetical *author index* to all citations in all four volumes.

It must be observed that Klee's importance does not seem to lessen with time. In all probability, the nature of the man and the temperament of his century warrants confidence that commentary will continue to expand. Both the analyst and the artist will search for a point of equilibrium as they reconcile the illusions of the world without with the realities of the world within. Klee's sensitivity breeds sense, and his clarity inspires reflection and

eloquence. His literary legacy seems hard to match, and, as a mirror of a transcendental soul in the arts, matchless.

Without attempting that total inventory which an exhaustive compilation would entail, the following survey is wide ranging. Chronological organisation is ignored in favour of more meaningful classifications. *Bibl.* refers to the item so numbered in the bibliography.

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Documents bibl.50-54
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On Modern Art bibl.59-63a
Pedagogical Sketchbook bibl.64-67a
Poems bibl.68-69
Form- und Gestaltungslehre bibl.70
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- 51**
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- 54**
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334
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Also edition de luxe (bibl.78).

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Index to Der Sturm, p.211 ff. List of publications and exhibitions. 'Erste Ausstellung. März 1912, Der Blaue Reiter.'

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Wedderkop, Hermann von. *Paul Klee*. Leipzig, Klinkhardt & Biermann, 1920. 16pp., 33 illus.
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but also major portion of text and plates in re-issue: *Jahrbuch der Jungen Kunst* (Leipzig) Vol.1, pp.225-236, 1920. *Der Cicerone* (Berlin) Vol.12 no.14, pp.527-538, July 1920.

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Pictorial Titles
Obviously, many previously cited references, for example the Grohmann monographs, will be extensively illustrated; others, like Cooper (bibl.131), Forge (bibl.150) and Read (bibl.293) are selectively illustrated. This applies in equal degree to several exhibitions catalogues, like the handsome Beyeler edition (bibl.108). Therefore the reader should not ignore their relevance as visual anthologies. Here, the effort will be to refer to illustrated items where the text is subordinated to pictorial matter or intended primarily to introduce the reader to an experience in looking. Owing to the vast reproduction of Klees that have been printed, the following can claim to be merely a representative cross-section.

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- 360**
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Buchheim Bücher, reissued 1959, on works from 1910–1940.
- 361**
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- 362**
Debrunner, Hugo. *Paul Klee : Flugsamen, Gartentor, Landschaft mit der Heiligen*. Zurich, Brunnenhof, 1949.
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- 363**
Dorfles, Gillo. *Klee*. Milan, Edizioni del Milione, 1950. 4pp., 6 col. pl.
Introduction in English and Italian; plates in folder.
- 364**
Grohmann, Will. *Paul Klee : Handzeichnungen*. Wiesbaden, Insel, 1952. [8]pp. plus 40 illus.
Insel-Bücherei, no.294; works; 1909–40.
- 365**
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- Grohmann. See also bibl.170–177.
- 365a**
Haftmann, Werner. *The Inward Vision*. New York, Abrams, 1958.
See bibl.193 and other editions, bibl.192.
- 366**
Hertig, Louis. *Paul Klee (1879–1940) : 6 Reproduktionen*. Lucerne, Kunstkreis, 1957.
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- 367**
Hofmann, Werner. *Paul Klee. Traumlandschaft mit Mond*. Frankfurt am Main, Insel, 1964. [45]pp. incl. 16 col. illus.
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- 368**
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- 369**
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- 370**
Jedlicka, Gotthard. *Paul Klee : Vogel-Begegnung*. Munich, Piper, 1960. 47pp. incl. 16 col. illus.
Nachwort, pp.37–46. Piper-Bücherei.
- 371**
Klee, Felix. *Paul Klee : 22 Zeichnungen*. Stuttgart, Eidos, 1948. [4]pp. plus 22 pl.
'Geleitwort von Felix Klee . . . Gesamtgestaltung des Mappenwerkes von Alfred Eichhorn.'
- 372**
Klee, Paul. *Im Zwischenreich*. Cologne, DuMont Schauberg, 1957.
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- 373**
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Text supplemented by 18 loose plates in folio (14 in colour).
- 374**
I Maestri del Colore : Paul Klee. Milan, Fratelli Fabbri n.p., n.d. col. pl.
Brief introduction and notes. Series edited by Dino Fabbri and Franco Russoli.
- 375**
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Prefatory note by Léon Degand.
- 376**
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- 377**
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- 378**
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- 379**
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Anonymous brochure; notes on artist and colour plates.
- 380**
Schmalenbach, Werner. *Paul Klee : Gemälde*. Wiesbaden, Vollmer [1955]. 8pp. plus 10 col. pl.
Commentaries on plates. Also Berlin, Darmstadt, Buch-Gemeinschaft, 1957 and Ed. Hyperion, Milan.
- 381**
Schmidt, Georg. *Paul Klee : Aquarelle und Temperablätter*. Basle, Holbein, 1948. 15pp. plus 10 col. pl.
- 382**
Schmidt, Georg. *Paul Klee : Engel bringt das Gewünschte*. Baden-Baden, Klein, 1953. 30pp. plus 12 col. pl.
Der Silberne Quell, no.14.
- 383**
Schmidt, Georg. *Paul Klee : Zehn Farbenlichtdrucke nach Werken der Sammlung Richard Doetsch-Benziger*. Basle, Phoebe, 1956. 13pp. plus 10 col. pl. (In folio).
Analyses of paintings, pp. 8–13.
- 384**
Schmidt, Georg. *Ten Reproductions in Facsimile of Paintings by Paul Klee*. New York, Wittenborn [1946]. (12)pp. illus 10 col. pl. In folio.
Translation: *Zehn Farbenlichtdrucke nach Gemälden von Paul Klee*. Basle, Holbein, 1946.
English by Robert Allen and Douglas Cooper.
- 385**
Schmidt, Georg. *Paul Klee : Ten Facsimile Reproductions of Works in Watercolour and Tempera*. Basle, Holbein, 1948. 14pp. plus 10 col. pl. (In folio).
Analysis of paintings, pp. 9–14. English version by Douglas Cooper.
- 386**
Der Sturm, Galerie. *Paul Klee*. Berlin, Der Sturm, 1918. (26)pp. Incl. illus.
Sturm Bilderbücher III which consists of 22 plates and an index. Probably edited by Herwarth Walden.
- 387**
U.N.E.S.C.O. Catalogue de reproductions en couleurs de peintures. Paris, 1949 – current.
Part two of a listing concerned with works since 1860. Published at various intervals (1949, 1952, 1955, etc.), it lists quality reproductions of important works. For similar directories see Mary W. Chamberlin: *Guide to Art Reference Books*. Chicago, American Library Association, 1969 (c.1959). Chapter 5: Reproductions.
- 388**
Wingler, Hans M. *Der Blaue Reiter*. Feldafing, Buchheim, 1954. pp.43–48, 56; 5 illus.
Graphics, also published in unpaginated Buchheim Bücher (1954) with 10 Klee illus.
- 389**
Zahn, Leopold. *Paul Klee : Im Lande Edelstein*. Baden-Baden, Klein, 1952. (12 pp. plus 12 col. pl.
Der Silberne Quell, no.9, also issued by Klein as: 'In the Land called Precious Stone' (1953).
French edition: Paris, Arts et Métiers graphiques (1957). Reproduces works in the Doetsch-Benziger collection, Basle.
- Reproductions**
While some general indexes are noted here (bibl.263, 387) single items customarily noted in *The Art Index* (H. W. Wilson, N.Y., 1929–current) or their European equivalents have not been incorporated in this survey. For obvious reasons, no index of colour plates, even limited to selected examples, e.g. *The Inward Vision* (bibl.193.) could be attempted on this occasion. It remains, however, a seductive possibility for addenda projected in Vol.4 of the present series.
- Special Numbers**
- 391**
Der Ararat (Munich). Zweites Sonderheft: Paul Klee. May–June 1920.
Catalogue of the 60th exhibition of the Galerie Neue Kunst (Hans Goltz). Also 200 copies with a signed lithograph.
- 392**
Artlover (New York). Spring 1959.
[14]pp., 15 illus. Last number of 'J. B. Neumann's Bilderhefte'. Includes Neumann Gallery catalogue of early Klee show (Berlin, Mar.–Apr. 1921). Texts by Hugo Ball, Paul Klee, Clifford Odets.
- 393**
Bauhaus : Zeitschrift für Gestaltung (Dessau). Dec. 1931.
9pp., 14 illus. Contributions by Kandinsky, Grohmann, Hertel.
- 394**
Cahiers d'Art (Paris) Vol.20–21, 1945–46.
Klee section: pp.9–74, 70 illus. Poems: René Clair, Jacques Prévert. Articles: Christian Zervos, Georges Duthuit, Pierre Mabilie, Tristan Tzara, Joe Bosquet, Georges Bataille, Roger Vitrac, Will Grohmann, Valentine Hugo.
- 395**
Du (Zurich) Oct. 1948.
Vol. 8, No.10, 52pp., 23 illus. (pt. col., port.). Extracts from Klee and critiques assembled by Carola Giedlon-Wecker. Articles by Arnold Köbler, Max Huggler, Felix Klee, Rolf Bürgi, Alexander Zschokke, Camilla Halter, Walter Ueberwasser, René Thiessing, Marguerite Frey-Surbek.
- 396**
Mizue (Tokyo) June 1954.
No.586, pp.1–45, illus. (pt.col.). Contents: I. Yanaihara: Le monde de Paul Klee.—Y. Tono: Essai sur Paul Klee.—H. Yoshimura: Klee à l'époque du Bauhaus.
- 397**
Pour l'Art (Lausanne). July–Aug. 1954.
No. 37, pp. 1–34: 'Numéro spécial consacré à l'Exposition Paul Klee.' Texts from Paul and Felix Klee, Marcel Arland, André Tanner, Alexandre Zschokke, René Berger, Paul Éluard (poem) – usually from previously published sources.
- Articles on Klee**
- 398**
Adler, Jankel. Memories of Paul Klee: *Horizon* (London) no.34, pp.264–267, Oct. 1942.
Translation: Herinneringen aan Paul Klee. *Kroniek van Kunst en Kultur* (Amsterdam) no. 7–8, pp.213–214, 1947. English 'reprinted from The Golden Horizon': *Scottish Art Review* (Glasgow) Vol. 13, no.3, pp.7–9, 3 illus., 1972.
- 399**
Arnheim, Rudolf. Klee für Kinder. *Die Weltbühne* (Berlin) Vol.26, pp.170–173, 28 Jan. 1930.
- 399a**
Arnostava, Z. N. Paul Klee. *Blok P* (Brno) Vol.2, no.8, pp.110–111, illus. 1948.
- 400**
L'Arte Moderna (Milan). No.50, 53, 54, 127, 1967.
Miscellaneous references in series, including photos and reproductions. Note especially: 'La Bauhaus' (no. 50). Biography (no.127, p.480). 'Paul Klee e la sua influenza' (no.53). 'Antologia critica', general bibliography, index, p.392 (no.54).
- 401**
Aspects of the art of Paul Klee. *Museum of Modern Art Bulletin* (New York) Vol.17, no.4. pp.1–8, illus., Summer 1950.
Talks by Marcel Breuer, pp.3–5, and Ben Shahn pp.6–9 at a museum symposium (2 Feb. 1950).
- 402**
Aus Stuttgart wird uns geschrieben. *Kunstchronik und Kunstmarkt* (Leipzig) Vol.55, p.145, 1919–20.
A reader protests suggesting Klee as director of the Stuttgart school.
- 403**
Autour de Paul Klee. *Labyrinthe* (Geneva) no.11, p.11, 15 Aug. 1945.
- 404**
Barilli, R. Klee: tempo perfetto e tempo imperfetto. *Arte Illustrata*, no.30–33, pp.114–125, 14 illus., June–Sept. 1970.
English text, pp.154–158.
- 405**
Beenken, H. Nachkriegsliteratur über Klee und Picasso. *Zeitschrift für Kunst* (Leipzig) Vol. 4, no.1, pp.84–85, 1950.
- 406**
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- 407**
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- 408**
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Bruhl, Rodolfo G. Nuevos aportes sobre el arte de Paul Klee. *Ver y Estimar* (Buenos Aires) no.25, pp.16-32, 3 illus., Sept. 1951.

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